



Land Use Assumptions, Infrastructure Improvements Plan and Development Fee Report

Prepared for:
City of Coolidge, Arizona

July 11, 2019

TischlerBise
FISCAL | ECONOMIC | PLANNING

4701 Sangamore Road, Suite S240
Bethesda, MD
301.320.6900
www.tischlerbise.com

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

ARIZONA DEVELOPMENT FEE ENABLING LEGISLATION 1

Necessary Public Services 1

Infrastructure Improvements Plan..... 2

Qualified Professionals 2

Conceptual Development Fee Calculation 3

Evaluation of Offsets 3

DEVELOPMENT FEE REPORT 4

METHODOLOGY 4

General Methods 4

Updated Development Fee Methods and Cost Components 4

Figure 1: Recommended Calculation Methodologies 5

PROPOSED DEVELOPMENT FEES 5

Figure 2: Proposed Non-Utility Development Fees 5

Figure 3: Proposed Utility Development Fees 6

CURRENT DEVELOPMENT FEES 6

Figure 4: Current Non-Utility Development Fees 6

Figure 5: Current Utility Development Fees 7

DIFFERENCE BETWEEN PROPOSED AND CURRENT DEVELOPMENT FEES 7

Figure 6: Difference Between Proposed and Current Non-Utility Development Fees 7

Figure 7: Difference Between Proposed and Current Utility Development Fees 7

Figure 8: Current and Proposed Total Fees for a Single Unit 8

PARKS AND RECREATIONAL FACILITIES IIP 9

Service Area 9

Proportionate Share 9

Figure P1: Daytime Population in 2015 9

RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT 10

Figure P2: Parks and Recreational Facilities Ratio of Service Unit to Development Unit 10

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES 10

Park Land 11

Figure P3: Park Land Inventory and LOS 11

Park Amenities and Improvements – Incremental Expansion..... 11

Figure P4: Park Amenities Inventory and LOS 12

PROJECTED DEMAND FOR SERVICES AND COSTS 12

Figure P5: Projected Demand for Public Services and Facility Expansions..... 13

PARKS AND RECREATIONAL FACILITIES IIP 13

Figure P6: Necessary Parks and Recreational Facilities Improvements and Expansions (10- Year Total) 14

PARKS AND RECREATIONAL FACILITIES DEVELOPMENT FEES 14

Revenue Offset..... 14

Proposed Parks and Recreational Facilities Development Fees 14

Figure P7: Proposed Parks and Recreational Facilities Development Fees 15

FORECAST OF REVENUES 15

Parks and Recreational Facilities Development Fee Revenue 15

Figure P8: Projected Parks and Recreational Facilities Development Fee Revenue..... 16

FIRE FACILITIES IIP 17

Service Area 17

Proportionate Share 17

 Figure F1: Fire Proportionate Share 18

RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT 18

 Figure F2: Fire Facilities Ratio of Service Unit to Development Unit..... 19

 Figure F3: Nonresidential Vehicle Trips..... 20

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES 20

Fire Facilities – Incremental Expansion..... 20

 Figure F4: Fire Facilities Inventory and LOS..... 21

PROJECTED SERVICE UNITS AND PROJECTED DEMAND FOR SERVICES 21

 Figure F5: Projected Demand for Fire Station Facility Expansions 22

 Figure F6: Necessary Fire Improvements and Expansions (10-Yr Total)..... 23

FIRE FACILITIES DEVELOPMENT FEES 23

Revenue Offset..... 23

Proposed Fire Facilities Development Fees..... 23

 Figure F7: Proposed Fire Facilities Development Fees 23

FORECAST OF REVENUES 23

Development Fee Revenues for Fire Facilities..... 24

 Figure F8: Projected Fire Facilities Development Fee Revenue 24

STREET FACILITIES IIP 25

Service Area 25

METHODOLOGY 25

Proportionate Share 25

RATIO OF SERVICE UNITS TO LAND USE 25

Service Units 25

 Figure S1: Summary of Service Units..... 26

Trip Generation Rates..... 26

Adjustments for Commuting Patterns and Pass-By Trips 26

 Figure S2: Inflow/Outflow Analysis 27

Trip Length Weighting Factor by Type of Land Use 27

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES 27

 Figure S3: Coolidge Road Inventory 28

 Figure S4: Potential Street Improvement Projects..... 28

Vehicle Trips..... 29

 Figure S5: Vehicle Trips 29

Average Trip Length Calculation..... 29

 Figure S6: Average Trip Length based on Lane Miles and Capacity 30

PROJECTED SERVICE UNITS, DEMAND, AND COST FOR SERVICES 30

Travel Demand Model 31

 Figure S7: Projected Travel Demand Model..... 31

Development Fee Report – Plan-Based..... 32

 Figure S8: Development Fee Report Cost Allocation 32

STREET FACILITIES DEVELOPMENT FEES 32

<i>Revenue Credit/Offset</i>	32
<i>Proposed Street Facilities Development Fees</i>	32
Figure S9: Proposed Street Facilities Development Fees	33
PROJECTED STREETS DEVELOPMENT FEE REVENUE	33
WASTEWATER FACILITIES IIP	35
<i>Service Area</i>	35
<i>Proportionate Share</i>	35
RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT	35
Figure WW1: Wastewater Facilities Ratio of Service Unit to Development Unit.....	36
WASTEWATER CONNECTIONS AND FLOW	36
<i>Wastewater Facilities Level of Service Standards</i>	36
Figure WW2: Wastewater Facilities Level of Service Standards for Residential and Nonresidential Development.....	36
Figure WW3: Future Projections of Required Wastewater Capacity	37
<i>Wastewater Consumption</i>	37
Figure WW4: Future Projections for Wastewater Consumption	37
Figure WW5: Wastewater Treatment Plant Expansion Phasing	39
PROJECTED DEMAND AND COSTS FOR SERVICES	39
<i>Expansions # 1, 2, 3, and 4 – Cost Recovery</i>	40
Figure WW6: Expansion 1 – Cost Recovery	40
Figure WW7: Expansion 2 – Cost Recovery	40
Figure WW8: Expansion 3 – Cost Recovery	41
Figure WW9: Expansion #4 – Cost Recovery	41
<i>Wastewater Studies</i>	41
Figure WW10: Study Costs	41
<i>Other Future Growth-Related Needs</i>	41
<i>Wastewater IIP</i>	42
Figure WW11: 10-Year Necessary Wastewater Improvements and Expansions	42
WASTEWATER FACILITIES DEVELOPMENT FEE	42
<i>Revenue Offset</i>	42
<i>Proposed Wastewater Facilities Development Fees</i>	42
Figure WW12: Proposed Wastewater Facilities Development Fees	43
FORECAST OF REVENUES	44
<i>Development Fee Revenues for Wastewater Facilities</i>	44
Figure WW13: Projected Wastewater Facilities Development Fee Revenue	44
APPENDIX A: FORECAST OF REVENUES OTHER THAN FEES	45
Figure A1: Revenue Projections	45
Figure A2: General Fund Revenue per Person and Job	46
Figure A3: HURF Revenue per Person and Job.....	47
Figure A4: Wastewater Revenue per Person and Job	47
Figure A5: Sales Tax Contribution to Capital Fund	48
APPENDIX B: PROFESSIONAL SERVICES	50
Figure B1: Cost of Professional Services.....	50
APPENDIX C: LAND USE ASSUMPTIONS	51
SERVICE AREA	51
Figure C1: Map of City of Coolidge Service Area	52
RESIDENTIAL DEVELOPMENT	53

<i>Current Estimates of Residential Development</i>	53
Figure C2: Persons per Housing Unit by Type	54
<i>Past Residential Construction</i>	54
Figure C3: Residential Building Permits by Year	54
<i>Residential Development Forecast</i>	54
Figure C4: Projected Housing Units and Population	55
NONRESIDENTIAL DEVELOPMENT	55
<i>Jobs by Type of Nonresidential Development</i>	55
Figure C5: Current Jobs and Floor Area Estimates	56
Figure C6: Employee and Building Area Ratios.....	57
<i>Nonresidential Development Forecast</i>	57
Figure C7: Projected Jobs and Nonresidential Floor Area	58
AVERAGE DAILY VEHICLE TRIPS	58
<i>Residential Vehicle Trip Rates</i>	58
Figure C8: Average Weekday Vehicle Trips by Housing Type.....	59
<i>Commuter Trip Rate Adjustments</i>	59
Figure C9: Trip Adjustment for Commuters	60
<i>Nonresidential Trip Rate Adjustments</i>	60
<i>Total Estimated Weekday Vehicle Trips</i>	60
Figure C10: Trip Adjustment.....	61
DETAILED DEVELOPMENT PROJECTIONS	62
Figure C11: Development Projections Summary.....	62
SUMMARY OF GROWTH INDICATORS	63
Figure C12: Housing Unit and Nonresidential Floor Area Projections.....	63

EXECUTIVE SUMMARY

The City of Coolidge hired TischlerBise to document land use assumptions, prepare an Infrastructure Improvements Plan (hereinafter referred to as the "IIP"), and update development fees pursuant to Arizona Revised Statutes ("ARS") § 9-436.05 (hereinafter referred to as the "Enabling Legislation"). Municipalities in Arizona may assess development fees to offset infrastructure costs to a municipality for necessary public services. The development fees must be based on an Infrastructure Improvements Plan and Land Use Assumptions. The IIPs for each type of infrastructure are located in each infrastructure type's corresponding section, and the Land Use Assumptions can be found in Appendix A. The proposed development fees are displayed in the Development Fee Report chapter.

Development fees are one-time payments collected from new construction at the time a building permit is issued for the purpose of constructing system improvements needed to accommodate new development. The fee represents new growth's proportionate share of capital facility needs. Development fees do have limitations and should not be regarded as the total solution for infrastructure funding. Development fees may be used for infrastructure improvements or debt service for growth related infrastructure. In contrast to general taxes, development fees may not be used for operations, maintenance, replacement, or correcting existing deficiencies.

The updated Infrastructure Improvements Plan and associated development fees include the following necessary public services:

- Parks and Recreation
- Fire and Rescue
- Wastewater
- Streets

ARIZONA DEVELOPMENT FEE ENABLING LEGISLATION

The Enabling Legislation governs how development fees are calculated for municipalities in Arizona.

Necessary Public Services

Under the requirements of the Enabling Legislation, development fees may only be used for construction, acquisition or expansion of public facilities that are necessary public services. "Necessary public service" means any of the following categories of facilities that have a life expectancy of three or more years and that are owned and operated on behalf of the municipality: water, wastewater, storm water, drainage, flood control, library, streets, fire and police, and neighborhood parks and recreation. Additionally, a necessary public service includes any facility, not included in the aforementioned categories (e.g., general government facilities), that was financed before June 1, 2011 and that meets the following requirements:

1. Development fees were pledged to repay debt service obligations related to the construction of the facility.
2. After August 1, 2014, any development fees collected are used solely for the payment of principal and interest on the portion of the bonds, notes, or other debt service obligations issued before June 1, 2011 to finance construction of the facility.

Infrastructure Improvements Plan

Development fees must be calculated pursuant to an IIP. For each necessary public service that is the subject of a development fee, by law, the IIP shall include the following seven elements:

- A description of the existing necessary public services in the service area and the costs to update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.
- An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.
- A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved Land Use Assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable.
- A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.
- The total number of projected service units necessitated by and attributable to new development in the service area based on the approved Land Use Assumptions and calculated pursuant to generally accepted engineering and planning criteria.
- The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.

A forecast of revenues generated by new service units other than development fees, which shall include estimated state-shared revenue, highway users revenue, federal revenue, ad valorem property taxes, construction contracting or similar excise taxes and the capital recovery portion of utility fees attributable to development based on the approved Land Use Assumptions and a plan to include these contributions in determining the extent of the burden imposed by the development.

Qualified Professionals

The IIP must be developed by qualified professionals using generally accepted engineering and planning practices. A qualified professional is defined as “a professional engineer, surveyor, financial analyst or planner providing services within the scope of the person’s license, education, or experience.” TischlerBise is a fiscal, economic, and planning consulting firm specializing in the cost of growth services. Our services include development fees, fiscal impact analysis, infrastructure financing analyses, user fee/cost of service studies, capital improvement plans, and fiscal software. TischlerBise has prepared over 900 development fee studies over the past 40 years for local governments across the United States.

Conceptual Development Fee Calculation

In contrast to project-level improvements, development fees fund growth-related infrastructure that will benefit multiple development projects, or the entire service area (usually referred to as system improvements). The first step is to determine an appropriate demand indicator for the particular type of infrastructure. The demand indicator measures the number of service units for each unit of development. For example, an appropriate indicator of the demand for parks is population growth and the increase in population can be estimated from the average number of persons per housing unit. The second step in the development fee formula is to determine infrastructure improvement units per service unit, typically called level-of-service (LOS) standards. In keeping with the park example, a common LOS standard is improved park acres per thousand people. The third step in the development fee formula is the cost of various infrastructure units. To complete the park example, this part of the formula would establish a cost per acre for land acquisition and/ or park improvements.

Evaluation of Offsets

Regardless of the methodology, a consideration of “offsets” is integral to the development of a legally defensible development fee. There are two types of “offset” that should be addressed in development fee studies and ordinances. The first is a revenue offsets due to possible double payment situations, which could occur when other revenues may contribute to the capital costs of infrastructure covered by the development fee. This type of offset is integrated into the fee calculation, thus reducing the fee amount. The second is a site-specific offset or developer reimbursement for dedication of land or construction of system improvements. This type of offset is addressed in the administration and implementation of the development fee program. For ease of administration, TischlerBise normally recommends developer reimbursements for system improvements.

DEVELOPMENT FEE REPORT

METHODOLOGY

General Methods

There are three general methods for calculating development fees. The choice of a particular method depends primarily on the timing of infrastructure construction (past, concurrent, or future) and service characteristics of the facility type being addressed. Each method has advantages and disadvantages in a particular situation and can be used simultaneously for different cost components.

Reduced to its simplest terms, the process of calculating development fees involves two main steps: (1) determining the cost of development-related capital improvements and (2) allocating those costs equitably to various types of development. In practice, though, the calculation of development fees can become quite complicated because of the many variables involved in defining the relationship between development and the need for facilities within the designated service area. The following paragraphs discuss basic methods for calculating development fees and how those methods can be applied.

- **Cost Recovery (past improvements)** - The rationale for recoupment, often called cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.
- **Incremental Expansion (concurrent improvements)** - The incremental expansion method documents current level-of-service (LOS) standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity in infrastructure. New development is only paying its proportionate share for growth-related infrastructure. Revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments to keep pace with development.
- **Plan-Based (future improvements)** - The plan-based method allocates costs for a specified set of improvements to a specified amount of development. Improvements are typically identified in a long-range facility plan and development potential is identified by a land use plan. There are two basic options for determining the cost per demand unit: (1) total cost of a public facility can be divided by total demand units (average cost), or (2) the growth-share of the public facility cost can be divided by the net increase in demand units over the planning timeframe (marginal cost).

Updated Development Fee Methods and Cost Components

A summary is provided in Figure 1 showing the methodologies, components, and allocations used to calculate the IIP.

Figure 1: Recommended Calculation Methodologies

Fee Category	Cost Recovery (past)	Incremental Expansion (present)	Plan-Based (future)	Cost Allocation
Parks & Recreation		Park Amenities, Recreational Facilities	Impact Fee Study	Population, Jobs
Fire		Fire Stations	Impact Fee Study	Population, Nonres. Trips
Streets		Roadway Improvements	Impact Fee Study	Vehicle Miles Traveled
Wastewater	System Expansions 1-4		Wastewater Study, Impact Fee Study	Gallons

PROPOSED DEVELOPMENT FEES

Proposed non-utility development fees are displayed in Figure 2.

Figure 2: Proposed Non-Utility Development Fees

Residential Impact Fees (per Housing Unit)

Type	Parks & Recreation	Fire	Streets	Proposed Fee
Single Family Unit	\$1,058	\$426	\$3,235	\$4,719
Multi-family Unit	\$896	\$361	\$2,070	\$3,327

Nonresidential Impact Fees (per 1,000 Sq Ft)

Type	Parks & Recreation	Fire	Streets	Proposed Fee
Industrial	\$243	\$130	\$635	\$1,008
Commercial	\$358	\$825	\$4,245	\$5,428
Office & Institutional	\$454	\$322	\$3,679	\$4,455

Proposed utility development fees are shown in Figure 3.

Figure 3: Proposed Utility Development Fees

Wastewater Impact Fees (per Meter)

Meter Size (inches)	Proposed Fee
0.75	\$2,183
1.00	\$3,645
1.50	\$7,268
2.00	\$11,633
3.00	\$23,288

CURRENT DEVELOPMENT FEES

Coolidge's current non-utility development fees are displayed in Figure 4, as well as the original fee recommendations from the 2014 development fee study.

Figure 4: Current Non-Utility Development Fees

Residential Impact Fees (per Housing Unit)*

Type	Parks & Recreation	Library	Police	Fire	Streets	Total
Single Family Unit	\$839	\$296	\$734	\$751	\$2,067	\$4,687
Multi-family Unit	\$489	\$172	\$428	\$438	\$1,331	\$2,859

Nonresidential Impact Fees (per 1,000 Sq Ft)*

Type	Parks & Recreation	Library	Police	Fire	Streets	Total
Industrial	\$138	\$50	\$284	\$587	\$517	\$1,577
Commercial	\$302	\$109	\$2,252	\$1,284	\$3,698	\$7,645
Office & Institutional	\$501	\$181	\$881	\$2,132	\$1,601	\$5,297

* Current fee amounts were adopted at 80% of the recommended fees presented in the 2014 development fee study. The reduced fee amounts, as adopted, are shown.

Coolidge's current utility development fees are displayed in Figure 5.

Figure 5: Current Utility Development Fees

Wastewater Impact Fees (per Meter)

Meter Size (inches)	Current Fee
0.75	\$1,693
1.00	\$2,828
1.50	\$5,639
2.00	\$9,026
3.00	\$18,068

DIFFERENCE BETWEEN PROPOSED AND CURRENT DEVELOPMENT FEES

The differences between the proposed and current non-utility development fees are displayed in Figure 6. Total single unit fees increase by 3% and multi-family fees increase by 20%, and all nonresidential fees drop by between 6-34%.

Figure 6: Difference Between Proposed and Current Non-Utility Development Fees

Increase / (Decrease) in Residential Impact Fees (per Housing Unit)

Type	Parks & Recreation	Library	Police	Fire	Streets	Total	% Change
Single Family Unit	\$219	(\$296)	(\$734)	(\$325)	\$1,168	\$32	1%
Multi-family Unit	\$407	(\$172)	(\$428)	(\$77)	\$739	\$469	16%

Increase / (Decrease) in Nonresidential Impact Fees (per 1,000 Sq Ft)

Type	Parks & Recreation	Library	Police	Fire	Streets	Total	% Change
Industrial	\$138	(\$50)	(\$284)	(\$457)	\$118	(\$535)	-34%
Commercial	\$302	(\$109)	(\$2,252)	(\$459)	\$547	(\$1,971)	-26%
Office &	\$501	(\$181)	(\$881)	(\$1,810)	\$2,078	(\$293)	-6%

The differences between the proposed and current utility development fees are displayed in Figure 7.

Figure 7: Difference Between Proposed and Current Utility Development Fees

Increase / (Decrease) Wastewater Impact Fees (per Meter)

Meter Size (inches)	Change	% Change
0.75	\$490	29%
1.00	\$817	29%
1.50	\$1,629	29%
2.00	\$2,607	29%
3.00	\$5,220	29%

To obtain the total development fee for a residential unit, utility fees must be added to non-utility fees. Assuming a 0.75 meter for a single residential unit, current and proposed total development fees are shown in Figure 8. Proposed fees for a single residential unit in Coolidge increase by 10%.

Figure 8: Current and Proposed Total Fees for a Single Unit

Total Fees for Single Family Residential Unit			
Current	Proposed	Change	% Change
\$6,380	\$6,902	\$522	8%

PARKS AND RECREATIONAL FACILITIES IIP

ARS §9-463.05 (T)(7)(g) defines the facilities and assets which can be included in the Parks and Recreational Facilities IIP:

“Neighborhood parks and recreational facilities on real property up to thirty acres in area, or parks and recreational facilities larger than thirty acres if the facilities provide a direct benefit to the development. Park and recreational facilities do not include vehicles, equipment or that portion of any facility that is used for amusement parks, aquariums, aquatic centers, auditoriums, arenas, arts and cultural facilities, bandstand and orchestra facilities, bathhouses, boathouses, clubhouses, community centers greater than three thousand square feet in floor area, environmental education centers, equestrian facilities, golf course facilities, greenhouses, lakes, museums, theme parks, water reclamation or riparian areas, wetlands, zoo facilities or similar recreational facilities, but may include swimming pools.”

The Parks and Recreational Facilities IIP includes components park amenities, recreational facilities, and the cost of professional services for preparing the Parks and Recreational Facilities IIP and development fees.

Service Area

The City of Coolidge plans to provide a uniform level-of-service and equal service for Parks and Recreational Facilities throughout the City.

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. As shown in Figure P1, TischlerBise recommends daytime population as a reasonable indicator of the potential demand for Parks and Recreational Facilities from residential and nonresidential development. According to the U.S. Census Bureau web application OnTheMap, there were 1,791 inflow commuters in 2015, which is the number of persons who have jobs in Coolidge but live outside the City. The proportionate share is based on cumulative impact days per year with the number of residents potentially impacting Parks and Recreational Facilities 365 days per year. Inflow commuters potentially impact Parks and Recreational Facilities 200 days per year (4 days per week multiplied by 50 weeks a year).

Figure P1: Daytime Population in 2015

Coolidge Residents	Inflow Commuters	Cumulative Impact Days per Year			Cost Allocation	
		Residential	Nonresidential	Total	Residential	Nonresidential
11,955	1,791	4,364	358	4,722	92%	8%
Residential Days per Year		365	365 days per year			
Nonresidential Days per Year		200	4 days per week x 50 weeks per year			

RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Figure P2 displays the level of service of each Parks and Recreational Facilities element compared to residential and nonresidential land use.

Figure P2: Parks and Recreational Facilities Ratio of Service Unit to Development Unit

Residential Development	
Land Use	Persons per Household
Single-Family	2.73
Multifamily	2.31

Source: TischlerBise Land Use Assumptions.

Nonresidential Development per KSF	
Land Use	Employees per KSF
Commercial/Retail	2.34
Office/Institutional	2.97
Industrial/Flex	1.59

Source: Institute of Transportation Engineers, 2017.

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Park Land

The inventory of parks in Coolidge is displayed in Figure P3. Coolidge has 12 parks, which total 48.86 acres. The level of service for residential development is 0.0037 acres per resident, which is found by multiplying the total number of acres (48.86) by the residential proportionate share (92%) and dividing this total by the 2018 population (12,169). The nonresidential level of service is 0.0015 acres per job, which is found by multiplying the total number of acres (48.86) by the nonresidential proportionate share (8%) and dividing this total by the number of jobs in 2018 (2,571).

Because the City of Coolidge does not anticipate any new park land purchases over the next ten years, or developers will be asked to dedicate a reasonable portion of land to the City for development as park land, the cost of additional park land acquisition is not recommended to be included in the development fee study. Therefore, the park land component has been excluded from the City's development fee calculations.

Figure P3: Park Land Inventory and LOS

<i>Park</i>	<i>Acreage</i>
Kennilworth Sports Complex	20.16
HoHoKam Park	9.90
San Carlos Park	4.20
Landmark Ranch	3.35
East Park	2.40
North Park	2.35
Adult Center Park	2.10
Walker Park	1.82
Main St. Park	1.00
Rotary Skate Park	0.90
Palo Verde Park	0.50
Nutt Park	0.18
TOTAL	48.86

Level-of-Service (LOS) Standards

Residential Proportionate Share	92%
Nonresidential Proportionate Share	8%
Coolidge Residents in 2018	12,169
Coolidge Jobs in 2018	2,571
LOS: Acres per Resident	0.0037
LOS: Acres per Job	0.0015

Source: City of Coolidge

Park Amenities and Improvements – Incremental Expansion

The inventory of park amenities and improvements is displayed in Figure P4. Coolidge parks have 236 amenities, which have a total replacement cost of \$4.89 million. Dividing the total cost by the total number of improvements yields an average cost per improvement of \$20,720. The current residential level of service is 0.0178 amenities per resident, which was obtained by multiplying the 236 amenities by the

residential proportionate share (92%) and dividing this amount by the current population (12,169). The nonresidential level of service is 0.0073 units per job. Multiplying the average cost per improvement (\$20,720) by the levels of service results in a cost per person of \$369.69 and \$152.22 per job.

Figure P4: Park Amenities Inventory and LOS

<i>Amenity</i>	<i># of Units</i>	<i>Cost per Unit</i>	<i>Replacement Cost</i>
Pavillions	1	\$25,000	\$25,000
Bathrooms	3	\$25,000	\$75,000
Playgrounds	7	\$60,000	\$420,000
Basketball Courts	5	\$20,000	\$100,000
Baseball Fields	5	\$600,000	\$3,000,000
Soccer Fields	1	\$200,000	\$200,000
Parking Spaces	214	\$5,000	\$1,070,000
TOTAL	236	\$20,720	\$4,890,000

Level-of-Service (LOS) Standards

Residential Proportionate Share	92%
Nonresidential Proportionate Share	8%
Coolidge Residents in 2018	12,169
Coolidge Jobs in 2018	2,571
LOS: Amenities per Resident	0.0178
LOS: Amenities per Job	0.0073

Cost Analysis

Average Cost per Amenity	\$20,720
LOS: Amenities per Resident	0.0178
LOS: Amenities per Job	0.0073
Cost per Person	\$369.69
Cost per Job	\$152.16

Source: City of Coolidge

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

As shown in Figure P5, the Land Use Assumptions projects an additional 1,836 persons and 270 jobs over the next ten years.

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

These projected service units are multiplied by the current levels-of-service for the IIP components shown in Figure P5. New development will demand an additional 35 park amenities and 883 square feet of recreational facilities.

The park acres, park improvements, and recreational facility square feet totals demanded by new development multiplied by the respective costs results in a total of \$725,200 to spend on park amenities and \$78,632 to spend on recreational facilities to accommodate projected demand, shown in the bottom of Figure P5.

Figure P5: Projected Demand for Public Services and Facility Expansions

Park Level-of-Service Standards			
Level-of-Service		Demand Unit	Unit Cost
0.0178	Amenities	per Person	\$20,720
0.0073		per Job	

Need for Park Amenities & Recreational Facilities				
Year		Population	Jobs	Park Amenities
Base	2018	12,169	2,571	236
Year 1	2019	12,236	2,581	237
Year 2	2020	12,344	2,596	239
Year 3	2021	12,452	2,611	241
Year 4	2022	12,587	2,631	244
Year 5	2023	12,722	2,651	246
Year 6	2024	12,925	2,681	250
Year 7	2025	13,127	2,711	254
Year 8	2026	13,397	2,751	259
Year 9	2027	13,667	2,791	264
Year 10	2028	14,005	2,841	271
Ten-Year Increase		1,836	270	35
Growth-Related Expenditures				\$725,200

PARKS AND RECREATIONAL FACILITIES IIP

ARS § 9-463.05(E)(3) requires:

“A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved land use assumptions, including a forecast of the costs of infrastructure, improvements, real

property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Figure P6 lists park improvements and recreational facilities that Coolidge is planning to fund to accommodate new development over the next ten years. These are the projects the City has identified that will serve new growth and development fees will fund all or a portion of the costs. Improvements on current parks and future parks could include playground equipment, tennis courts, ballfields and other miscellaneous improvements.

Figure P6: Necessary Parks and Recreational Facilities Improvements and Expansions (10- Year Total)

Project	Cost
Park Amenities and Improvements	
Various Recreation Improvements	\$1,000,000

PARKS AND RECREATIONAL FACILITIES DEVELOPMENT FEES

Revenue Offset

A revenue offset is not required for the Park and Recreational Facilities development fees, as there is no outstanding debt on existing parks.

Proposed Parks and Recreational Facilities Development Fees

Infrastructure standards and cost factors for Parks and Recreational Facilities, including park amenities, recreational facilities, and the professional services cost for the IIP and Development Fee Study are summarized at the top of Figure P7. Updated development fees for Parks and Recreational Facilities are shown in the column with green shading, and the current development fees are highlighted in grey.

Figure P7: Proposed Parks and Recreational Facilities Development Fees

Fee Component	Cost per Person	Cost per Job
Park Amenities	\$369.69	\$152.16
Impact Fee Study	\$17.75	\$0.92
TOTAL	\$387.44	\$153.08

Residential Development (per Household)

Type of Housing Unit	Persons per Housing Unit	Proposed Fee	Current Fee	Increase / (Decrease)	% Change
Single-Family	2.73	\$1,058	\$839	\$219	26%
Multifamily	2.31	\$896	\$489	\$407	83%

Nonresidential Development (per 1,000 square feet)

Type	Jobs per 1,000 Sq. Ft.	Proposed Fee	Current Fee	Increase / (Decrease)	% Change
Industrial	1.59	\$243	\$138	\$105	76%
Commercial	2.34	\$358	\$302	\$56	19%
Office & Institutional	2.97	\$454	\$501	(\$47)	-9%

FORECAST OF REVENUES

Appendix A contains the forecast of revenues required by Arizona's enabling legislation (ARS § 9-463.05(E)(7)).

Parks and Recreational Facilities Development Fee Revenue

The top of Figure P8 summarizes the growth-related cost of infrastructure in Coolidge over the next ten years (approximately \$739,000 for Parks and Recreational Facilities). Coolidge should receive approximately \$751,000 in Parks and Recreational Facilities development fee revenue over the next ten years, if actual development matches the Land Use Assumptions.

Figure P8: Projected Parks and Recreational Facilities Development Fee Revenue

Fee Component	Growth Share
Park Amenities	\$725,200
Impact Fee Study	\$13,920
Total Expenditures	\$739,120

		<i>Single-Family</i>	<i>Multifamily</i>	<i>Industrial</i>	<i>Commercial</i>	<i>Office & Institutional</i>
		\$1,058 per Unit	\$896 per Unit	\$243 per KSF	\$358 per KSF	\$454 per KSF
Year		Housing Units	Housing Units	KSF	KSF	KSF
Base	2018	4,112	395	365	329	410
1	2019	4,135	397	366	331	412
2	2020	4,171	401	367	334	414
3	2021	4,208	404	367	337	417
4	2022	4,253	409	368	341	420
5	2023	4,299	413	369	345	423
6	2024	4,367	420	370	351	428
7	2025	4,436	426	371	357	433
8	2026	4,527	435	372	365	439
9	2027	4,618	444	374	373	446
10	2028	4,732	455	375	383	454
10-year Increase		620	60	9	54	43
Projected Revenue		\$656,376	\$53,407	\$2,289	\$19,261	\$19,737

Total Projected Revenue	\$751,071
Surplus / (Deficit)	\$11,951

FIRE FACILITIES IIP

ARS § 9-463.05 (T)(7)(f) defines the facilities and assets which can be included in the Fire Facilities IIP:

“Fire and police facilities, including all appurtenances, equipment and vehicles. Fire and police facilities do not include a facility or portion of a facility that is used to replace services that were once provided elsewhere in the municipality, vehicles and equipment used to provide administrative services, helicopters or airplanes or a facility that is used for training police and firefighters from more than one station or substation.”

The Fire Facilities IIP and Development Fees includes components for fire facilities and the cost of professional services for preparing the Fire Facilities IIP and development fees. Incremental expansion is used to calculate fire facilities component of the development fees.

Service Area

The City provides fire services and facilities as one integrated network. As a result, the service area is City-wide.

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. TischlerBise recommends functional population to allocate the cost of fire facilities to residential and nonresidential development. Functional population is similar to what the U.S. Census Bureau calls "daytime population," by accounting for people living and working in a jurisdiction, but also considers commuting patterns and time spent at home and at nonresidential locations. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. It describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states. OnTheMap data is used, as shown in Figure F1, to derive Functional Population shares for Coolidge.

Residents that do not work are assigned 20 hours per day to residential development and 4 hours per day to nonresidential development (annualized averages). Residents that work in Coolidge are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Coolidge are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Coolidge, the cost allocation for residential development is 80 percent while nonresidential development accounts for 20 percent of the demand for municipal facilities.

Figure F1: Fire Proportionate Share

<i>Demand Units in 2015</i>			<i>Demand Hours / Day</i>	<i>Person Hours</i>	<i>Proportionate Share</i>
Residential					
Population*	11,955				
62% Residents Not Working	7,376		20	147,520	
38% Resident Workers**	4,579				
14% Worked in City**		648	14	9,072	
86% Worked Outside City**		3,931	14	55,034	
			Residential Share	211,626	80%
Nonresidential					
Non-Working Residents	7,376		4	29,504	
Jobs Located in City**	2,439				
27% Residents Working in City**		648	10	6,480	
73% Non-Resident Workers (inflow commuters)		1,791	10	17,910	
			Nonresidential Share	53,894	20%
			TOTAL	265,520	

* U.S. Census Bureau, American Community Survey 5-Year Estimates.

** Inflow/Outflow Analysis, OnTheMap web application, U.S. Census Bureau data for all jobs.

RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Figure F2 displays the ratio of a service unit to various types of land uses for residential and nonresidential development. The residential development table displays the persons per housing unit for single unit residential and residential structures with two or more units. Nonresidential development fees are calculated using vehicle trips as the service unit. The multiplier, which is vehicle trips per thousand square feet, and the adjustment factor for each land use is shown below.

Figure F2: Fire Facilities Ratio of Service Unit to Development Unit**Residential Development**

Type of Household	Persons per Housing Unit
Single-Family	2.73
Multi-Family	2.31

Nonresidential Development

Type	Trips per 1,000 Sq. Ft.	Trip Rate Adjustment
Industrial	3.93	50%
Commercial	37.75	33%
Office & Institutional	9.74	50%

Population is used as the residential service unit for fire infrastructure.

For nonresidential impact fees, TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for fire facilities and equipment. Trip generation rates are used for nonresidential development because vehicle trips are highest for commercial developments, such as shopping centers, and lowest for industrial/warehouse development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for public safety from nonresidential development. Other possible nonresidential demand indicators, such as employment or floor area, will not accurately reflect the demand for service. For example, if employees per thousand square feet were used as the demand indicator, fire impact fees would be too high for office and institutional development because offices typically have more employees per 1,000 square feet than retail uses. If floor area were used as the demand indicator, fire impact fees would be too high for industrial development.

Average weekday vehicle trips for nonresidential development are from the 10th edition of the reference book, *Trip Generation*, published in 2017 by the Institute of Transportation Engineers. A “trip end” represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). Trips for nonresidential development are calculated per thousand square feet. The basic trip adjustment factor is 50 percent for all nonresidential development except commercial. For commercial/retail development, the trip adjustment factor is less than 50 percent because retail uses attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For an average size shopping center, the ITE (2017) indicates that on average 34 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66 percent of attraction trips have the shopping center as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor ($0.66 \times 0.50 = 0.33$) is approximately 33 percent of the trips.

Using the current estimates of nonresidential square footage by type, TischlerBise applied the trip end estimates and adjustment factors to calculate the average weekday trips for nonresidential development in Coolidge, as shown in Figure F3. TischlerBise estimates that there are 6,817 weekday trips attributable to existing nonresidential development in the City of Coolidge.

Figure F3: Nonresidential Vehicle Trips

Nonresidential Vehicle Trips on an Average Weekday		2018	
Nonresidential Gross Floor Area (1,000 sq. ft.)		Assumptions	
Industrial		365	
Commercial		329	
Office & Institutional		410	
Total Nonresidential Floor Area (x1,000 sq. ft.)		1,105	
Average Weekday Vehicle Trips Ends per 1,000 Sq. Ft.*		Trip Ends	Adj. Factor
Industrial		3.93	50%
Commercial		37.75	33%
Office & Institutional		9.74	50%
Nonresidential Vehicle Trips on an Average Weekday			
Industrial		717	
Commercial		4,101	
Office & Institutional		1,999	
Total Inbound Nonresidential Trips		6,817	

* Trip rates are from the Institute of Transportation Engineers (ITE) Trip Generation Manual (2017).

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Fire Facilities – Incremental Expansion

The Fire Department has two fire stations totaling 10,528 square feet of floor area. The incremental expansion methodology is used to calculate the facility portion of the fee, with new development maintaining the current infrastructure standards.

As shown in Figure F4, the level of service for residential development is 0.692 square feet per person, and the nonresidential level of service is 0.309 square feet per vehicle trip end. This is determined by

multiplying the total square footage by the proportionate share factors (80% for residential and 20% for nonresidential), and then dividing the respective totals by the current service units (12,169 persons for residential and 6,818 vehicle trips for nonresidential). Then, the levels of service are multiplied by the cost per square foot (\$210) to determine costs per service unit of \$145.35 per person and \$64.85 per vehicle trip end.

Figure F4: Fire Facilities Inventory and LOS

	Square Feet	Cost per Square Foot	Total Cost
Station 1	7,047	\$210	\$1,479,870
Station 2	3,481	\$210	\$731,010
TOTAL	10,528	\$210	\$2,210,880

Level-of-Service (LOS) Standards

Population in 2018	12,169
Nonresidential Vehicle Trips in 2018	6,818
Residential Share	80%
Nonresidential Share	20%
LOS: Square Feet per Person	0.692
LOS: Square Feet per Vehicle Trip	0.309

Cost Analysis

Cost per Square Foot	\$210
LOS: Square Feet per Person	0.692
LOS: Square Feet per Vehicle Trip	0.309
Cost per Person	\$145.35
Cost per Vehicle Trip	\$64.85

Source: City of Coolidge

PROJECTED SERVICE UNITS AND PROJECTED DEMAND FOR SERVICES

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

The Land Use Assumptions projects an additional 1,836 persons and 900 nonresidential vehicle trips over the next ten years, as shown in Figure F5.

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

As shown in Figure F5, this new development will demand approximately 1,549 square feet of facilities.

The ten-year total of the projected demand for fire station facilities is multiplied by the cost to determine the total cost to accommodate the projected demand over the next ten years. The projected demand of 1,615 square feet of fire station floor area is multiplied by the unit cost of \$210 per square foot to determine the approximate cost of additional floor area to be \$325,290.

Figure F5: Projected Demand for Fire Station Facility Expansions

Level-of-Service		Demand Unit	Unit Cost
Residential	0.692		
Nonresidential	0.309	per Trip	

Year	Population	Nonres. Vehicle Trips	Residential Sq. Ft.	Nonresidential Sq. Ft.	TOTAL
Base 2018	12,169	6,818	8,422	2,106	10,528
Year 1 2019	12,236	6,853	8,469	2,116	10,585
Year 2 2020	12,344	6,903	8,544	2,132	10,675
Year 3 2021	12,452	6,953	8,618	2,147	10,765
Year 4 2022	12,587	7,018	8,712	2,167	10,879
Year 5 2023	12,722	7,084	8,805	2,188	10,993
Year 6 2024	12,925	7,184	8,946	2,218	11,164
Year 7 2025	13,127	7,284	9,085	2,249	11,335
Year 8 2026	13,397	7,418	9,272	2,291	11,563
Year 9 2027	13,667	7,553	9,459	2,332	11,792
Year 10 2028	14,005	7,719	9,693	2,384	12,077
Ten-Year Increase	1,836	900	1,271	278	1,549
Growth-Related Expenditures			\$266,910	\$58,380	\$325,290

FIRE FACILITIES IIP

ARS § 9-463.05(E)(3) requires:

“A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved land use assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

The necessary fire facilities that Coolidge is planning to fund to accommodate new development over the next ten years is shown in Figure F6, which solely consists of an additional fire station to accommodate

new growth. The Fire Department plans to fund a portion of the new fire station with the development fee revenue.

Figure F6: Necessary Fire Improvements and Expansions (10-Yr Total)

Project	Cost
Fire Station 3	\$4,000,000
TOTAL	\$4,000,000

Source: City of Coolidge CIP.

FIRE FACILITIES DEVELOPMENT FEES

Revenue Offset

A revenue offset is not required for the Fire Facilities development fees, as there is no outstanding debt on existing fire stations.

Proposed Fire Facilities Development Fees

The proposed development fees for Fire Facilities are shown in Figure F7. Cost factors for fire facilities and professional services are summarized at the top of the figure. The development fee is calculated by multiplying the service units per development unit (number of persons per housing unit for residential and vehicle trips per 1,000 square feet for nonresidential) by the total cost per service unit of each component of the fee.

Figure F7: Proposed Fire Facilities Development Fees

Fee Component	Cost per Person	Cost per Trip End
Facilities	\$145.35	\$64.85
Impact Fee Study	\$10.73	\$1.39
TOTAL	\$156.08	\$66.24

Residential Development (per housing unit)

Type of Household	Persons per Housing Unit	Proposed Fee	Current Fee	Increase / (Decrease)	% Change
Single-Family	2.73	\$426	\$751	(\$325)	-43%
Multi-Family	2.31	\$361	\$438	(\$77)	-18%

Nonresidential Development (per 1,000 Square Feet)

Type	Trips per 1,000 Sq. Ft.	Trip Rate Adjustment	Proposed Fee	Current Fee	Increase / (Decrease)	% Change
Industrial	3.93	50%	\$130	\$587	(\$457)	-78%
Commercial	37.75	33%	\$825	\$1,284	(\$459)	-36%
Office & Institutional	9.74	50%	\$322	\$2,132	(\$1,810)	-85%

FORECAST OF REVENUES

Appendix A contains the forecast of revenues required by Arizona's enabling legislation (ARS § 9-463.05(E)(7)).

Development Fee Revenues for Fire Facilities

Revenue projections shown below assume implementation of the proposed Fire Facilities development fees and that development over the next ten years is consistent with the Land Use Assumptions. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown below, the ten-year growth costs of fire improvement costs total \$334,570 and approximately \$397,162 will be collected from development fees.

Figure F8: Projected Fire Facilities Development Fee Revenue

Component	Expenditures
Facilities	\$325,290
Impact Fee Study	\$9,280
Total Expenditures	\$334,570

		Single-Family	Multi-Family	Industrial	Commercial	Office & Institutional
		\$426 per Unit	\$361 per Unit	\$130 per KSF	\$825 per KSF	\$322 per KSF
Year		Housing Units	Housing Units	KSF	KSF	KSF
Base	2018	4,112	397	365	329	410
1	2019	4,135	401	366	331	412
2	2020	4,171	404	367	334	414
3	2021	4,208	409	367	337	417
4	2022	4,253	413	368	341	420
5	2023	4,299	420	369	345	423
6	2024	4,367	426	370	351	428
7	2025	4,527	435	371	357	433
8	2026	4,618	444	372	365	439
9	2027	4,732	455	374	373	446
10	2028	4,846	466	375	383	454
10-year Increase		734	68	9	54	43
Projected Revenue		\$312,870	\$24,682	\$1,225	\$44,387	\$13,998

Projected Revenue	\$397,162
Surplus / (Deficit)	\$62,592

STREET FACILITIES IIP

ARS § 9-463.05 (T)(7)(e) defines the facilities and assets that can be included in the Street Facilities IIP:

“Street facilities located in the service area, including arterial or collector streets or roads that have been designated on an officially adopted plan of the municipality, traffic signals and rights-of-way and improvements thereon.”

The Street Facilities IIP includes components for arterial street improvements and the cost of professional services for preparing the Street Facilities IIP and related Development Fee Report. A hybrid of the plan-based and incremental expansion methodologies is used for urban minor arterial street improvements, and a plan-based methodology is used for the Development Fee Report.

Service Area

Given the characteristics of how the City plans and designs its street network, the service area for the Street Facilities IIP is Citywide.

METHODOLOGY

Streets development fees use a hybrid of the plan-based and incremental expansion methodologies and allocate capital costs to residential and nonresidential development based on vehicle miles of travel using average weekday vehicle trips and average trip lengths. This methodology allows Coolidge to maintain the current LOS standard as growth occurs. Development fee revenue collected using this methodology may not be used to replace or rehabilitate existing improvements.

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to provide necessary public services to the development. Trip length, trip generation rates and trip adjustment factors are used to determine the proportionate impact of residential, commercial, office, and industrial land uses on the City’s streets network.

RATIO OF SERVICE UNITS TO LAND USE

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Service Units

The appropriate service unit for the streets development impact fees is vehicle miles of travel (VMT). VMT creates the link between supply (roadway capacity) and demand (traffic generated by new development).

Components used to determine VMT include: trip generation rates, adjustments for commuting patterns and pass-by trips, are discussed further in this section.

Figure S1: Summary of Service Units

Dev Type	Weekday VTE	Dev Unit	Trip Adj
Single Unit	8.22	HU	63%
Multi-Family	5.26	HU	63%
Industrial/ Flex	3.37	KSF	50%
Commercial	37.75	KSF	33%
Office & Instit.	9.74	KSF	50%

Trip Generation Rates

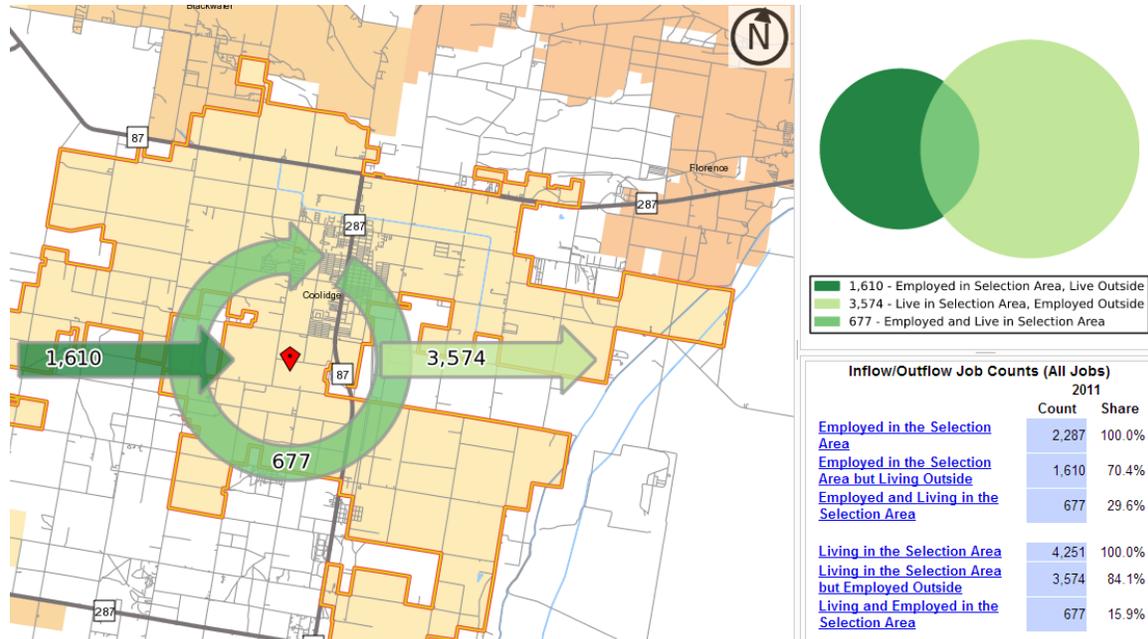
For nonresidential development the trip generation rates are from the 10th edition of the reference book Trip Generation published by the Institute of Transportation Engineers (2017). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). As an alternative to using the national average trip generation rate for residential development, the Institute of Transportation Engineers (ITE) publishes regression curve formulas that may be used to derive custom trip generation rates using local demographic data. This is explained in more detail in Appendix C: Land Use Assumptions.

Adjustments for Commuting Patterns and Pass-By Trips

To calculate Street Facilities Development Fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50%. As discussed further below, the development fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Residential development has a larger trip adjustment factor of 63% to account for commuters leaving Coolidge for employment. According to the 2009 National Household Travel Survey, weekday work trips are typically 31% of production trips (i.e., all out-bound trips, which are 50% of all trips). As shown in Figure S2, the Census Bureau's web application OnTheMap indicates that 84% of resident workers traveled outside the city for work in 2015. In combination, these factors ($0.31 \times 0.50 \times 0.84 = .13$) support the additional 13% allocation of trips to residential development.

Figure S2: Inflow/Outflow Analysis



For commercial development, the trip adjustment factor is less than 50% because retail development and some services attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, the ITE data indicates that 34% of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66% of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66% multiplied by 50%, or approximately 33% of the trips. These factors are shown to derive inbound vehicle trips for each type of nonresidential land use.

Trip Length Weighting Factor by Type of Land Use

The Street Facilities Development Fee methodology includes a percentage adjustment, or weighting factor, to account for trip length variation by type of land use. As documented in Table 6 of the 2009 National Household Travel Survey, vehicle trips from residential development are approximately 121% of the average trip length. The residential trip length adjustment factor includes data on home-base work trips, social, and recreational purposes. Conversely, shopping trips associated with commercial development are roughly 66% of the average trip length while other nonresidential development typically accounts for trips that are 73% of the average for all trips.

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs

and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

The existing public services included in the Street Facilities IIP are lane miles of rural and urban collectors and minor arterials. These categories of roads total 89.95 lane miles as shown in Figure S3. Only the Urban Minor Arterial category (17.05 lane miles) is included in the IIP and development fee calculation.

Figure S3: Coolidge Road Inventory

Classification	Lane Miles
Rural Major Collector	61.22
Rural Minor Collector	2.03
Urban Collector	9.65
Urban Minor Arterial	17.05
Total	89.95

Source: City of Coolidge GIS.

Figure S4 contains a list of potential road projects which Coolidge may construct over the next 10 years. The City estimates the average cost per lane at \$950,000.

Figure S4: Potential Street Improvement Projects

Project Location	Start Point	End Point	Length (Miles)	Lanes Before	Lanes After	Lane Increase	Lane Mile Increase
RANDOLPH RD	HWY 87	RR	0.36	2	3	1	0.36
MARTIN RD	9TH ST	KENWORTHY RD	0.50	2	3	1	0.50
VAH KI INN RD	NORTHERN AVE	SKOUSEN RD	0.50	2	3	1	0.50
COOLIDGE AVE	9TH ST	KENWORTHY RD	0.50	2	3	1	0.50
VAH KI INN RD	MAIN ST	SONORA ST	0.10	2	4	2	0.20
MCCARTNEY RD	SIGNAL PEAK RD	TOLTEC BUTTES RD	1.00	2	3	1	1.00
SKOUSEN RD	VAH KI INN RD	HWY 87	1.02	2	3	1	1.02
HOUSER RD	TBD	TBD	1.00	0	2	2	2.00
ERICA RD	TBD	TBD	1.00	0	2	2	2.00
HANNA RD	TBD	TBD	1.00	0	2	2	2.00
VAH KI INN RD	SONORA ST	WASHINGTON ST	0.25	2	4	2	0.49
KENWORTHY RD	MARTIN RD	NORTH 1/2 MI	0.50	2	5	3	1.50
MARTIN RD	ARIZONA BLVD	9TH ST	0.51	2	4	2	1.01
MARTIN RD	KENWORTHY RD	SKOUSEN RD	1.00	2	3	1	1.00
RANDOLPH RD	SIGNAL PEAK RD	TOLTEC BUTTES RD	1.00	2	3	1	1.00
MARTIN RD	SKOUSEN RD	MACRAE RD	1.04	2	3	1	1.04
MARTIN RD	9TH ST	KENWORTHY RD	0.50	3	5	2	1.00
SKOUSEN RD	COOLIDGE AVE	MID WAY ST	0.50	3	4	1	0.50
NORTHERN AVE	9TH ST	KENWORTHY RD	0.51	2	3	1	0.51
COOLIDGE AVE	9TH ST	KENWORTHY RD	0.50	3	5	2	1.00
RANDOLPH RD	RR	VAIL RD	0.64	2	3	1	0.64
ATTAWAY RD	VAH KI INN RD	HWY 287	0.99	2	3	1	0.99
SKOUSEN RD	COOLIDGE AVE	MARTIN RD	1.00	2	3	1	1.00
SKOUSEN RD	MID WAY ST	VAH KI INN RD	0.50	2	4	2	1.00
RANDOLPH RD	LOLA LEE RD	SIGNAL PEAK RD	0.50	2	3	1	0.50
Total				47	83		23.26

Source: City of Coolidge. Based upon 35 year PM10 model by MAG.

Vehicle Trips

Figure S5 shows the calculation of vehicle trips generated by existing development. When the average weekday VTE and Trip Adjustment percentages (shown in Figure S5) are multiplied by the development unit quantities for the City from the Land Use Assumption in Appendix C (housing units and nonresidential KSF), the total number of vehicle trips generated by existing development is determined. As shown in Figure S5, this totals 29,319 adjusted vehicle trips.

Figure S5: Vehicle Trips

Dev Type	ITE Code	Weekday VTE	Dev Unit	Trip Adj	2018 Dev Units	VMT per Dev Unit
Single Unit	210	8.22	HU	63%	4,112	21,294
Multi-Family	220	5.26	HU	63%	395	1,309
Industrial/ Flex	130	3.37	KSF	50%	365	616
Commercial	820	37.75	KSF	33%	329	4,101
Office & Instit.	710	9.74	KSF	50%	410	1,999
Total Adjusted Vehicle Trips						29,319

Average Trip Length Calculation

Figure S6 shows the calibration of existing development to Coolidge's existing minor arterial road network. The daily lane capacity used in this analysis is 8,850, which was derived from the Maricopa Association of Governments Regional Transportation Model, 2017, Table 4.1. Knowing the current number of arterial lane miles (17.05) TischlerBise can determine that the weighted-average miles per trip on the current network is 5.05 miles.

The methodology for calculating the weighted-average miles per trip in Coolidge is as follows:

- As shown earlier in Figure S3, the City has a total 17.0 minor arterial lane miles which can support approximately 150,450 vehicle miles of travel (17.0 lane miles multiplied by lane capacity of 8,850 vehicle trips). Using the vehicle trips generated by existing development from Figure S5, we can back into the average trip length within the network. As shown in Figure S6, an average trip length of 4.72 miles yields a current need for 17.0 arterial lane miles and 150,877 vehicle miles of travel, which matches the existing arterial network and capacity.

Figure S6: Average Trip Length based on Lane Miles and Capacity

Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor	VMT per Dev Unit
Single Unit	8.22	HU	63%	121%	29.6
Multi-Family	5.26	HU	63%	121%	18.9
Industrial/ Flex	3.37	KSF	50%	73%	5.8
Commercial	37.75	KSF	33%	66%	38.8
Office & Instit.	9.74	KSF	50%	73%	16.8
Avg Trip Length (miles)	4.72				
Capacity Per Lane	8,850				

		2018
		Base
Development	Single Unit	4,112
	2+ Units	395
	Industrial KSF	365
	Commercial KSF	329
	Office & Instit. KSF	410
Average Weekday Vehicle Trips	Single Unit Trips	21,294
	2+ Unit Trips	1,309
	Industrial Trips	616
	Commerical Trips	4,101
	Office & Instit. Trips	1,999
	Total Vehicle Trips	29,319
VMT	Vehicle Miles of Travel	150,877
Demand	Lane Miles Needed	17.0

PROJECTED SERVICE UNITS, DEMAND, AND COST FOR SERVICES

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

TischlerBise created an aggregate travel model to convert development units within Coolidge to vehicle trips and vehicle miles of travel. This includes the trip factors discussed above and is shown in Figure S7.

Travel Demand Model

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

Projected development in Coolidge over the next 10 years, and the corresponding need for additional lane miles is shown in Figure S7. Trip generation rates and trip adjustment factors convert project development into average weekday vehicle trips. New development in Coolidge will generate 4,308 additional vehicle trips.

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

The travel demand model inputs above are used to derive level of service in Vehicle Miles of Travel and future needs of lane miles. A Vehicle Mile of Travel (VMT) is a measurement unit equal to one vehicle traveling one mile. Figure S6 above indicates that the average trip that could occur on the arterial network is 4.72 miles. As shown in Figure S7, based on the existing minor arterial network, the City of Coolidge would need to construct an additional 2.5 lane miles of minor arterials to accommodate projected development over the next 10 years.

Figure S7: Projected Travel Demand Model

		2018	2019	2020	2021	2022	2023	2027	10-Year Increase
		Base	1	2	3	4	5	10	
Development	Single Unit	4,112	4,135	4,171	4,208	4,253	4,299	4,732	620
	2+ Units	395	397	401	404	409	413	455	60
	Industrial KSF	365	366	367	367	368	369	375	9
	Commercial KSF	329	331	334	337	341	345	383	54
	Office & Instit. KSF	410	412	414	417	420	423	454	43
Average Weekday Vehicle Trips	Single Unit Trips	21,294	21,412	21,601	21,790	22,026	22,263	24,507	3,213
	2+ Unit Trips	1,309	1,316	1,328	1,340	1,354	1,369	1,507	198
	Industrial Trips	616	617	618	619	620	621	632	16
	Commerical Trips	4,101	4,128	4,165	4,202	4,250	4,298	4,771	670
	Office & Instit. Trips	1,999	2,006	2,017	2,029	2,045	2,061	2,211	212
	Total Vehicle Trips	29,319	29,479	29,729	29,980	30,296	30,612	33,627	4,308
VMT	Vehicle Miles of Travel	150,877	151,703	153,007	154,312	155,954	157,595	173,226	22,349
Demand	Lane Miles Needed	17.0	17.1	17.3	17.4	17.6	17.8	19.6	2.5

ARS § 9-463.05(E)(3) requires:

“A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved land use assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Multiplying the increase in number of lane miles (2.5) by the assumed cost per lane mile (\$950,000) results in a 10-year cost of approximately \$2.4 million.

Development Fee Report – Plan-Based

The cost to prepare the Streets Facilities IIP and Development Fee Report totals \$13,920. The City plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of new residential and nonresidential development from the Land Use Assumptions document, the cost is \$2.07 per average weekday VMT.

Figure S8: Development Fee Report Cost Allocation

Necessary Public Service	Cost	Assessed Against	Proportionate Share	Cost Allocation			Cost per Demand Unit	
				Units	2018	2023		Change
Streets	\$13,920	All Development	100%	Avg Wkdy VMT	150,877	157,595	6,718	\$2.07

STREET FACILITIES DEVELOPMENT FEES

Revenue Credit/Offset

A revenue credit/offset is not necessary for the Street Facilities development fees because the 10-year growth costs approximate the amount of revenue that is projected to be generated by development fees according to the Land Use Assumptions.

Proposed Street Facilities Development Fees

The top portion of Figure S9 shows the input variables used to determine the cost per vehicle mile of travel (VMT), which will serve as the base unit for the Street Facilities development fees. Multiplying the increase in number of lane miles (2.5) by the cost per lane mile (\$950,000) results in a 10-year cost of \$2.39 million attributed to minor arterial lane miles. When the 10-year costs are divided by the 10-increase in VMT (22,349), this produces a capital cost per VMT of \$107.23 for lane miles. After the Professional Services cost per VMT of \$2.07 is added, the total cost per VMT is \$109.41.

The proposed Street Facilities development fees are shown in the bottom portion of Figure S9. Residential development fees are expressed per housing unit. Nonresidential development fees are expressed per 1,000 square feet (KSF) of floor area. The fee amounts are calculated by multiplying the Average Trip Length, Average Weekday Vehicle Trips, and Trip Rate and Trip Length Adjustment factors by the Total Cost per VMT. For example, the Single Family development fee is calculated as follows:

$$\begin{array}{r}
 4.72 \text{ average miles per trip} \\
 \times \\
 1.21 \text{ trip length adjustment factor} \\
 \times \\
 8.22 \text{ average weekday vehicle trips} \\
 \times \\
 63\% \text{ trip rate adjustment factor} \\
 \times \\
 \text{\$109.41 total cost per VMT}
 \end{array}$$

=

\$3,235 per housing unit

Figure S9: Proposed Street Facilities Development Fees

Input Variables

10-Year VMT Increase	22,349
Cost per Additional Lane Mile	\$950,000
Additional Lane Miles Needed to Maintain LOS	2.5
10-Year Growth Cost, Lane Miles	\$2,399,042
Lane Miles Cost per VMT	\$107.34
Development Fee Report	\$2.07
Total Cost per VMT	\$109.41
Average Trip Length (miles)	4.72

Residential Development (per Housing Unit)

Development Type	Avg Wkdy Veh Trip Ends	Trip Rate Adjustment	Trip Length Adjustment	Proposed Fees	Current Fee	Increase / Decrease	% Change
Single-Family	8.22	63%	1.21	\$3,235	\$2,067	\$1,168	57%
Multi-Family	5.26	63%	1.21	\$2,070	\$1,331	\$739	56%

Nonresidential Development (per 1,000 Sq. Ft.)

Development Type	Avg Wkdy Veh Trip Ends	Trip Rate Adjustment	Trip Length Adjustment	Proposed Fees	Current Fee	Increase / Decrease	% Change
Industrial	3.37	50%	0.73	\$635	\$517	\$118	23%
Commercial	37.75	33%	0.66	\$4,245	\$3,698	\$547	15%
Office & Institutional	19.52	50%	0.73	\$3,679	\$1,601	\$2,078	130%

PROJECTED STREETS DEVELOPMENT FEE REVENUE

Projected fee revenue shown in Figure S10 is based on the development projections in the Land Use Assumptions (see Appendix C) and the updated Street Facilities development fees (see Figure S9). Expenditures on minor arterial street improvements are derived from the anticipated need for 2.5 new lane miles over the next 10 years (see Figure S7) at an average cost of \$950,000 per lane mile. If development occurs at a faster rate than projected, the demand for infrastructure will increase along with development fee revenue. If development occurs at a slower rate than projected, the demand for infrastructure will decrease and development fee revenue will decrease at a similar rate. Anticipated development fee revenue is approximately \$2.5 million over the next 10 years, while expenditures are also estimated at \$2.4 million. The slight difference in revenue to expenditures is due to rounding.

Figure S10: Projected Streets Development

Ten-Year Growth-Related Costs for Street Facilities

Street Improvements	\$2,399,042
Professional Services	\$13,920
Total	\$2,412,962

		Single Unit	2+ Units	Industrial	Commercial	Office/Institutional
		\$3,235	\$2,070	\$635	\$4,245	\$3,679
		per housing unit	per housing unit	per 1000 Sq Ft	per 1000 Sq Ft	per 1000 Sq Ft
	<i>Year</i>	<i>Hsg Units</i>	<i>Hsg Units</i>	<i>KSF</i>	<i>KSF</i>	<i>KSF</i>
Base	2018	4,112	395	365	329	410
1	2019	4,135	397	366	331	412
2	2020	4,171	401	367	334	414
3	2021	4,208	404	367	337	417
4	2022	4,253	409	368	341	420
5	2023	4,299	413	369	345	423
6	2024	4,367	420	370	351	428
7	2025	4,436	426	371	357	433
8	2026	4,527	435	372	365	439
9	2027	4,618	444	374	373	446
10	2028	4,732	455	375	383	454
<i>Ten-Yr Increase</i>		<i>620</i>	<i>60</i>	<i>9</i>	<i>54</i>	<i>43</i>
Projected Revenue =>		\$2,007,000	\$123,000	\$6,000	\$228,000	\$160,000

Total Projected Revenues	\$2,524,000
Cumulative Net Surplus/ Deficit	\$111,038

WASTEWATER FACILITIES IIP

ARS 9-463.05 (T)(7)(b) defines the facilities and assets which can be included in the Wastewater Facilities IIP:

“Wastewater facilities, including collection, interception, transportation, treatment and disposal of wastewater, and any appurtenances for those facilities.”

The Wastewater Facilities IIP includes components for cost recovery of past growth-related wastewater improvements (Expansions 1, 2, 3, and 4), wastewater studies, and the cost of professional services for preparing the Wastewater Facilities IIP and development fees.

Service Area

The Wastewater Service Area is city-wide.

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to provide necessary public services to the development.

The Wastewater Facilities IIP and development fees are assessed on both residential and nonresidential development as both types of development create a burden for additional wastewater facilities. Customers by land use are used to determine the proportionate share of this burden. In 2017, approximately 93% of wastewater customers in Coolidge were residents, accounting for 87% of the average daily demand. Approximately 7% were nonresidential customers, accounting for 13% of the average daily demand.

RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Residential Wastewater Facilities development fees are assessed on a per unit basis, based on average daily gallons of usage per customer. Nonresidential Wastewater Facilities development fees are assessed by size and type of meter needed to serve the development. However, a new residential unit requiring a 1-inch or greater meter would be assessed a development fee based upon meter size. The nonresidential wastewater development fees are calculated by multiplying the number of gallons per unit by the capacity ratio for the corresponding size and type of meter multiplied by the cost per gallon, as shown in Figure WW1.

Figure WW1: Wastewater Facilities Ratio of Service Unit to Development Unit

<i>Residential Development</i>		
Land Use	LOS: Average Day Gallons per Connection	
Residential Unit	200	

<i>Nonresidential Development</i>		
Meter Size (inches)		Capacity Ratio ¹
0.75	Displacement	1.00
1.00	Displacement	1.67
1.50	Displacement	3.33
2.00	Compound	5.33
3.00	Compound	10.67

1. AWWA. (2012). M6 Water Meters–Selection, Installation, Testing and Maintenance, Fifth Edition.

WASTEWATER CONNECTIONS AND FLOW

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

Wastewater Facilities Level of Service Standards

Level of service for Wastewater Facilities is based on average day gallons of capacity per connection per day. Figure WW2 shows the planned daily capacity on an average day for residential and nonresidential development. These standards are used for calculating treatment capacity assurances.

Figure WW2: Wastewater Facilities Level of Service Standards for Residential and Nonresidential Development

<i>Level of Service Standards</i>	
Residential LOS: Gallons Capacity/ Day/ Connection	190
Nonresidential LOS: Gallons Capacity/ Day/ Connection	368

Note: The City of Coolidge uses these design criteria for calculating treatment capacity assurances per Arizona Department of Environmental Quality requirements.

Future projections of required wastewater capacity are shown in Figure WW3 below, divided between residential and nonresidential development. These projections are derived from the data in Figure 55 and the Land Use Assumptions. Over the next 10 years, it is projected there will be an increase of 588 residential connections and 32 nonresidential connections. The projected residential and nonresidential

customers are based on 2018 connections provided by City of Coolidge and projected housing units and nonresidential floor area.

Required average day wastewater capacity will increase by 112,720 gallons per day for residential development and 11,776 gallons per day for nonresidential development. As shown in Figure WW3, this will result in a required total of 123,496 gallons per day in 2028.

Figure WW3: Future Projections of Required Wastewater Capacity

Projected Wastewater Capacity Required

	2018	2019	2020	2021	2022	2023		2028	10-Year
	Base	1	2	3	4	5		10	Increase
Housing Units	4,507	4,532	4,572	4,612	4,662	4,712		5,187	680
Residential Connections	3,900	3,922	3,956	3,991	4,034	4,077		4,488	588
Residential Gallons/ Day	741,000	745,180	751,640	758,290	766,460	774,630		852,720	111,720
Nonresidential Acreage	74.3	74.7	75.1	75.5	76.1	76.7		82.3	8
Nonresidential Connections	300	302	303	305	307	310		332	32
Nonresidential Gallons/ Day	110,400	111,136	111,504	112,240	112,976	114,080		122,176	11,776
Total Gallons/ Day	851,400	856,316	863,144	870,530	879,436	888,710		974,896	123,496
Total Gallons/ Day/ Connection	203	203	203	203	203	203		202	

Wastewater Consumption

Average wastewater consumption in 2018 is approximately 650,000 gallons per day. There were approximately 3,900 residential connections and 300 nonresidential connections. Each residential connection handled on average 145 gallons of wastewater per day, and 282 gallons per day for nonresidential connections.

Based on these factors, total residential wastewater consumption in 2018 is 565,500 gallons per day, and total nonresidential wastewater consumption is 84,500 gallons per day. Ten-year projections for wastewater consumption are shown in Figure WW4. The total wastewater consumption of 650,000 gallons per day is approximately 76% of the required capacity.

Figure WW4: Future Projections for Wastewater Consumption

Projected Wastewater Consumption

	2018	2019	2020	2021	2022	2023		2028	10-Year
	Base	1	2	3	4	5		10	Increase
Housing Units	4,507	4,532	4,572	4,612	4,662	4,712		5,187	680
Residential Connections	3,900	3,922	3,956	3,991	4,034	4,077		4,488	588
Residential Gallons/ Day	565,500	568,690	573,620	578,695	584,930	591,165		650,760	85,260
Nonresidential Acreage	74.3	74.7	75.1	75.5	76.1	76.7		82.3	8
Nonresidential Connections	300	302	303	305	307	310		332	32
Nonresidential Gallons/ Day	84,500	85,063	85,345	85,908	86,472	87,317		93,513	9,013
Total Gallons/ Day	650,000	653,753	658,965	664,603	671,402	678,482		744,273	94,273
Total Gallons/ Day/ Connection	155	155	155	155	155	155		154	

ANALYSIS OF CAPACITY AND USAGE OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

The City has been in process of expanding the Wastewater treatment plant since 1999 when it was expanded from 0.80 million gallons per day (MGD) capacity to 1.35 MGD. The daily flow into the plant at that time was approximately 0.60 MGD. The expansion involved the construction of a new aeration pond and a new polishing pond (both were approximately equal in size to the total areas of the existing two aeration and two polishing ponds), lining all ponds, installation of new pumps between the two new ponds, and construction of a new effluent pump station. (Expansion 1)

In October 2001, Kennedy/Jenks Consultants was hired to provide professional engineering services for the improvement and expansion of the wastewater treatment and collection system to 3.0 MGD. A phased expansion plan was developed that would initially increase the WWTP capacity to 2.0 MGD by constructing a new influent pump station and new headworks, making modifications to the existing effluent pump station, and constructing an effluent reuse pipe line (to additional farmland to support the increase in the Reuse Permit from 1.0 MGD to 2.0 MGD) followed with the future construction of a mechanical treatment plant that would increase the WWTP capacity to 3.0 MGD. (Expansion 2)

With the completion of the pump stations and headworks project in 2007, the City’s wastewater treatment plant was capable of treating 2.0 MGD to Class “C” effluent quality. The WWTP is a two stage aerated lagoon treatment process consisting of three first stage facultative aerated lagoons followed by three second stage aerated facultative lagoons. The Class C effluent is allowed to be disposed of on farm lands of fiber, seed, forage and similar crops. 2.0 MGD of Class C effluent requires 660 acres to meet Reclaimed Water Permit Water Balance Requirements. The farmland used for effluent management consists of the 330 acre Plant Farm owned by the City, and the 340 acre Bartlett Farm which, by agreement, will accept effluent for the next five years. The Bartlett Farms acreage was acquired in late 2013 to meet the needs for disposal of the expanded 1.0 MGD of Class C effluent to the current 2MGD treatment capacity of the plant. An effluent line was extended to this property in phases as treatment capacity exceeds 75% of the available treatment capacity. (Expansion 4)

The City is required by ADEQ to move forward with the expansion of the plant that will meet BADCT or specifically a mechanical plant capable of treating effluent to a Class A+ effluent. This expansion of the WWTP consists of a new 2.0 MGD Biological Treatment Unit constructed in the East first stage lagoon. During construction, treatment will be carried out by the West 1.0 MGD lagoon treatment train and the center 0.5 MGD treatment train. After construction is complete, the West 1.0 MGD train will continue to operate and the Class “C” effluent will be used on the 330 Acre City owned Plant Farm. The Class “A+” effluent from the mechanical plant will be used for open access irrigation, recharge to the groundwater or discharge to irrigation canals, provided appropriate disposal agreements are finalized. The central lagoon train will be converted to effluent storage as a part of this construction. This next expansion will

add 1 MGD of treatment capacity to the WWTP providing an overall capacity of 3.0 MGD. Phase 1 of this expansion was completed in 2010 which provided a switch over in electrical service and the construction of a bio-solids building and Administration building. (Expansions 3 and 5).

The phasing of the Wastewater Treatment Plant expansion has occurred as follows:

Figure WW5: Wastewater Treatment Plant Expansion Phasing

Expansion	Year	Description	Capacity Increase	Net Cost
1	1999	New Aeration Pond, New Effluent Pipe Station	550,000	\$580,000
2	2007	Influent & Effluent Lift Station, Headwords and Reuse Pipeline	650,000	\$5,777,855
3	2010	Phase 1: 3 MGD Mechanical Plant	3,000,000	\$1,816,182
4	2017	Effluent Disposal Line Extension	1,000,000	\$598,125
5	TBD	Completion of 3 MGD Plant	3,000,000	TBD

PROJECTED DEMAND AND COSTS FOR SERVICES

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(3) requires:

“A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved land use assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

Expansions # 1, 2, 3, and 4 – Cost Recovery

The City recently completed four expansions to wastewater facilities. These expansions include excess capacity which will serve new development and which the City plans to have new development repay via development fees. Thus, the cost-recovery methodology is used to calculate this component of the Wastewater Facilities IIP and Development Fees.

The first expansion included a new aeration pond, polishing pond, and effluent pump station. The original cost of this project was \$1,830,000 and added 550,000 gallons per day of Class C effluent. As shown in Figure WW6, repayment of costs on this expansion results in a net cost for new development of \$580,000, which results in a cost per gallon of capacity of \$1.05.

Figure WW6: Expansion 1 – Cost Recovery

Expansion #1	Cost
New Aeration Pond, New Effluent Pipe Station	\$1,830,000
Original Cost	\$1,830,000
EDA Grant	(\$1,110,000)
City Funds from Development Fees	(\$140,000)
Net Cost for New Development	\$580,000
Increase in System Capacity	550,000
Cost per Gallon of Capacity	\$1.05

The second expansion (Figure WW7) included an influent lift station, modifications to headworks and an effluent pump station, and an effluent reuse pipeline. It cost a total of \$5,777,855 and added 650,000 gallons per day of Class C effluent, yielding a cost per gallon of capacity of \$8.89.

Figure WW7: Expansion 2 – Cost Recovery

Expansion #2	Cost
Influent Lift Station	\$2,169,445
Modifications to Headworks and Effluent Pump	\$1,343,651
Effluent Reuse Pipeline	\$1,638,715
Design and CM fees	\$626,044
Net Cost for New Development	\$5,777,855
Increase in System Capacity	650,000
Cost per Gallon of Capacity	\$8.89

The third expansion constructed items for the future wastewater treatment plant (which will be a total of 3 MGD, of which 2 MGD will be Class A effluent and 1 MGD will be Class C effluent.) The total project cost is \$2,616,812. The ARRA Grant amount in the original cost is removed to determine the net cost for new development of \$1,816,812, which is divided by the capacity of the future plant (3 MGD) to yield a cost per gallon of capacity of \$0.61.

Figure WW8: Expansion 3 – Cost Recovery

Expansion #3		Cost
Electrical Conversion/ Sludge Building		\$2,397,071
Interest		\$219,111
Original Cost		\$2,616,182
ARRA Grant Amount		(\$800,000)
Net Cost for New Development		\$1,816,182
	Increase in System Capacity	3,000,000
	Cost per Gallon of Capacity	\$0.61

The fourth expansion consisted of extending Effluent disposal lines with disposal capabilities of 2 MGD of Class A effluent. The expansion increased the system capacity by 1 million gallons per day, and had a total project cost of \$598,125, yielding a cost per gallon of \$0.60.

Figure WW9: Expansion #4 – Cost Recovery

Expansion #4		Cost
Effluent Pipeline Phases 1-4		\$598,125
Net Cost for New Development		\$598,125
	Increase in System Capacity	1,000,000
	Cost per Gallon of Capacity	\$0.60

Wastewater Studies

Two studies are included in the IIP that will be funded through development fees because they are necessary to plan for future growth. As shown in Figure WW10, these include the Sewer Master Plan and the Capacity Assurance Analysis. Both have a growth share of 66%. The growth costs are each divided by 3 million gallons because these items are planning for the future 3 MGD wastewater treatment plant. This results in a cost per gallon of \$0.02 for the Sewer Master Plan and \$0.01 for the Capacity Assurance Allowance.

Figure WW10: Study Costs

Project	Cost	Growth Share ¹	Growth Cost	Capacity Increase	Cost per Gallon
Sewer Master Plan	\$100,000	66%	\$66,000	3,000,000	\$0.02
Capacity Assurance Analysis	\$25,000	66%	\$16,500	3,000,000	\$0.01
Total Cost per Gallon					\$0.03

1. City of Coolidge Public Works Staff .

Other Future Growth-Related Needs

As described above, when treatment capacity use reaches 75% of the 2 MGD (1.5 MGD) the City will be required by ADEQ to move forward with the expansion of the plant that will meet BADCT or specifically a mechanical plant capable of treating effluent to a Class A+ effluent. The total cost to upsize and upgrade the plant to Class A will be approximately \$25 million. This will require an additional lease for Class A disposal area or a land purchase.

Wastewater IIP

Figure WW11 displays the infrastructure improvements plan for Wastewater facilities, which display the projects described above, including the four expansions, and two studies.

Figure WW11: 10-Year Necessary Wastewater Improvements and Expansions

Project	Cost
Expansion 1	\$580,000
Expansion 2	\$5,777,855
Expansion 3	\$1,816,182
Expansion 4	\$598,125
Sewer Master Plan	\$100,000
Capacity Assurance Study	\$25,000
Total	\$8,897,162

WASTEWATER FACILITIES DEVELOPMENT FEE

Revenue Offset

A revenue credit is not necessary for the Wastewater Facilities development fees, as there is no outstanding debt on existing Wastewater Facilities.

Proposed Wastewater Facilities Development Fees

The proposed development fees for Wastewater Facilities are shown in Figure WW12. The development fee is derived from the level of service standard wastewater flow per residential unit (190 gallons), multiplied by the total cost per gallon (\$11.49), which includes the four wastewater expansions, the Sewer Master Plan, the Capacity Assurance Analysis, and the cost of professional services to prepare the Wastewater IIP and Development Fee.

Figure WW12: Proposed Wastewater Facilities Development Fees

Demand Indicators	
Residential Gallons per Average Day Capacity	190
Cost Factors per Gallon of Capacity	
Expansion 1 (Cost Recovery)	\$1.05
Expansion 2 (Cost Recovery)	\$8.89
Expansion 3 (Cost Recovery)	\$0.61
Expansion 4 (Cost Recovery)	\$0.60
Sewer Master Plan	\$0.02
Capacity Assurance Analysis	\$0.01
Professional Services	\$0.31
Total Cost per Gallon	\$11.49

Maximum Supportable Wastewater Facilities Charge						
Residential						
Residential (per dwelling unit)			\$2,183			
Nonresidential						
Meter Size (inches)		Capacity Ratio¹	Per Meter	Current Fees	Change	% Change
0.75	Displacement	1.00	\$2,183	\$1,693	\$490	29%
1.00	Displacement	1.67	\$3,645	\$2,828	\$817	29%
1.50	Displacement	3.33	\$7,268	\$5,639	\$1,629	29%
2.00	Compound	5.33	\$11,633	\$9,026	\$2,607	29%
3.00	Compound	10.67	\$23,288	\$18,068	\$5,220	29%

1. AWWA. (2012). M6 Water Meters–Selection, Installation, Testing and Maintenance, Fifth Edition.

FORECAST OF REVENUES

Appendix A contains the forecast of revenues required by Arizona’s enabling legislation (ARS § 9-463.05(E)(7)).

Development Fee Revenues for Wastewater Facilities

Revenue projections shown below assume implementation of the proposed Wastewater Facilities development fees and that development over the next ten years is consistent with the Land Use Assumptions. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown below, the ten-year wastewater improvement costs total \$1,391,890 and approximately \$1,510,000 will be collected from development fees.

Figure WW13: Projected Wastewater Facilities Development Fee Revenue

*Ten-Year Growth-Related Costs for Wastewater Facilities**

Expansion 1	\$130,232
Expansion 2	\$1,097,757
Expansion 3	\$74,764
Expansion 4	\$73,866
Study Costs	\$3,705
Professional Services	\$11,452
Total	\$1,391,776

		Single Unit \$2,183 per connection	Nonresidential \$7,268 per 1.5" connection
Year		Connections	Connections
Base	2018	3,900	300
1	2019	3,922	301
2	2020	3,956	303
3	2021	3,991	305
4	2022	4,034	307
5	2023	4,077	309
6	2024	4,142	313
7	2025	4,207	317
8	2026	4,294	321
9	2027	4,380	326
10	2028	4,488	332
10-Year Increase		588	32
Projected Revenue		\$1,280,000	\$230,000

Total Projected Revenues	\$1,510,000
Cumulative Net Surplus/ Deficit	\$118,224

*Ten year costs represent costs per gallon multiplied by projected increase in consumption.

APPENDIX A: FORECAST OF REVENUES OTHER THAN FEES

Arizona's enabling legislation (see relevant sections quoted below) requires municipalities to forecast revenues, determine if a contribution will be made in the future towards capital costs, and include these contributions in determining the extent of burden imposed by development. The required forecast of revenues, prepared by the City of Coolidge Finance staff, is shown in Figure A1. **Increases in revenues will offset by an increase in operating, maintenance, and replacement capital costs, so they will not be available to fund capital projects to accommodate new growth.**

ARS 9-463.05.E.7 requires "A forecast of revenues generated by new service units other than development fees, which shall include estimated state-shared revenue, highway users revenue, federal revenue, ad valorem property taxes, construction contracting or similar excise taxes and the capital recovery portion of utility fees attributable to development based on the approved Land Use Assumptions, and a plan to include these contributions in determining the extent of the burden imposed by the development as required in subsection B, paragraph 12 of this section."

Revenue projections are shown in Figure A1. Forecasts were created by City of Coolidge staff, except for Wastewater, which was derived from a linear regression analysis. Historical revenue data for the past six years, obtained from the City of Coolidge, were correlated to the growth in population and jobs in Coolidge.

Figure A1: Revenue Projections

General Fund Revenue	FY13-14	FY14-15	FY15-16	FY16-17	FY17-18
General Sales Taxes	\$4,277,191	\$4,307,803	\$4,254,881	\$4,202,430	\$4,150,454
Construction Sales Tax	\$384,000	\$400,000	\$500,000	\$600,000	\$700,000
State Sales Tax	\$1,021,770	\$1,072,859	\$1,126,501	\$1,182,826	\$1,241,968
Auto in Lieu Tax	\$518,440	\$523,624	\$528,861	\$534,149	\$539,491
State Revenue Sharing	\$1,319,255	\$1,451,181	\$1,596,299	\$1,755,928	\$1,931,521
Total General Fund Revenues	\$7,520,656	\$7,755,466	\$8,006,542	\$8,275,334	\$8,563,434

HURF Revenue	FY13-14	FY14-15	FY15-16	FY16-17	FY17-18
HURF Revenue	\$769,193	\$792,254	\$816,006	\$840,472	\$865,671

Wastewater Revenue	FY13-14	FY14-15	FY15-16	FY16-17	FY17-18
Wastewater Revenues	\$792,300	\$799,180	\$807,305	\$822,279	\$841,253

Source: Projections for General Fund revenue and HURF revenue from City of Coolidge. Wastewater revenue was derived from a linear regression analysis using past revenues.

Figure A2 shows General Fund revenue per person and job, based on the projections above and the approved Land Use Assumptions. As shown below, total General Fund revenues per person and job is expected to increase over the next five years. However, historically there has been very little General Fund revenue devoted to capital projects. The projected increase in General Fund revenue will be offset by an increase in operating, maintenance, and replacement capital costs.

Figure A2: General Fund Revenue per Person and Job

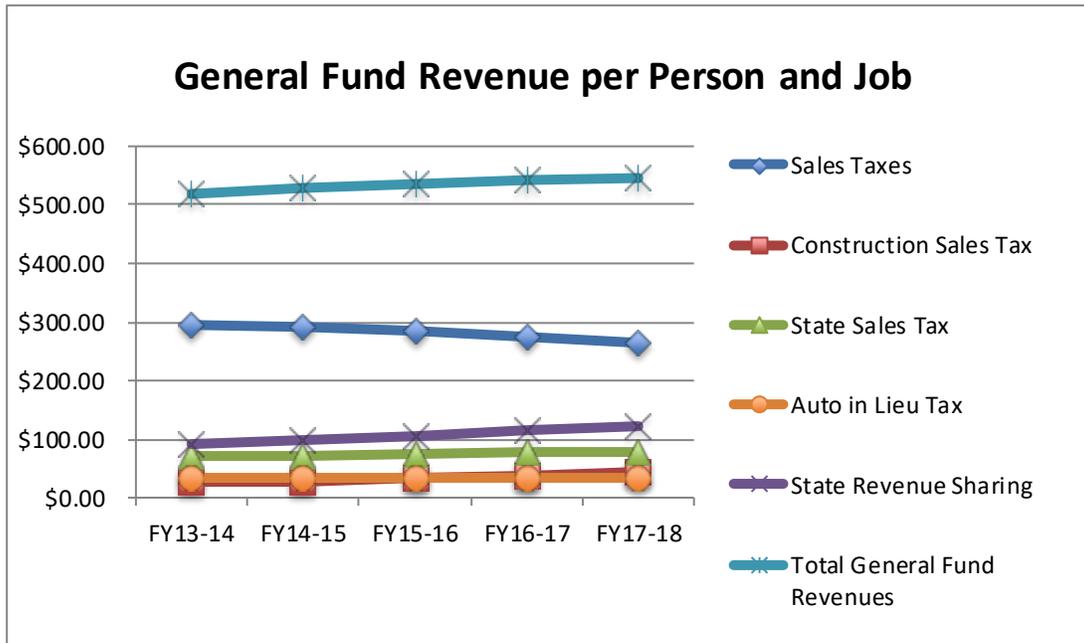


Figure A3 displays HURF Revenue per person and job over the next five years based on the projections above and the approved Land Use Assumptions. As shown below, revenue per person and job is expected to increase over the next five years and level off in the fifth year. HURF revenue is devoted to highway operation and maintenance. The projected increase in HURF revenue will be devoted to this purpose and not to capital projects to accommodate new growth.

Figure A3: HURF Revenue per Person and Job

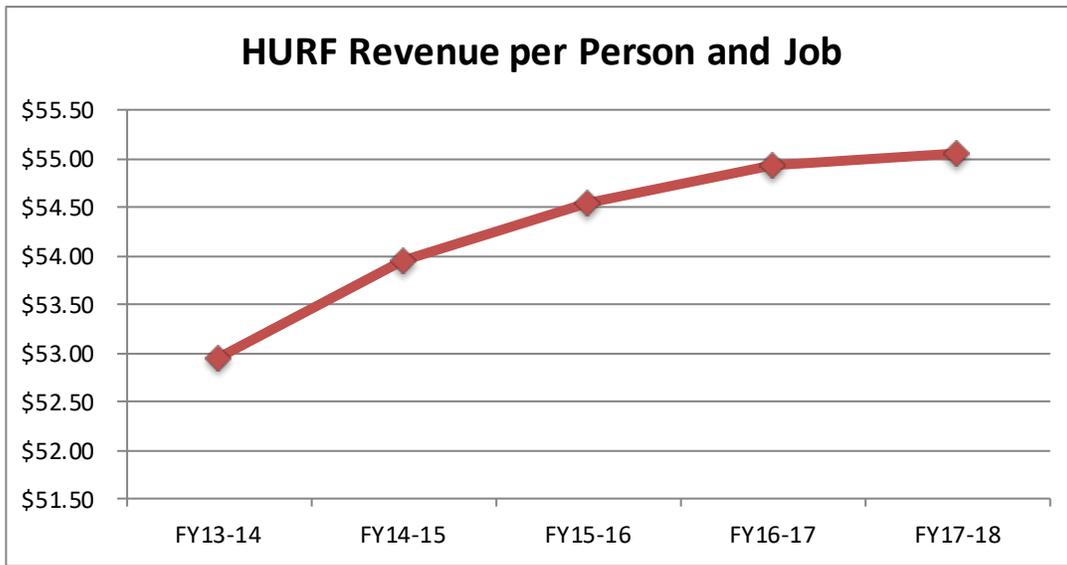
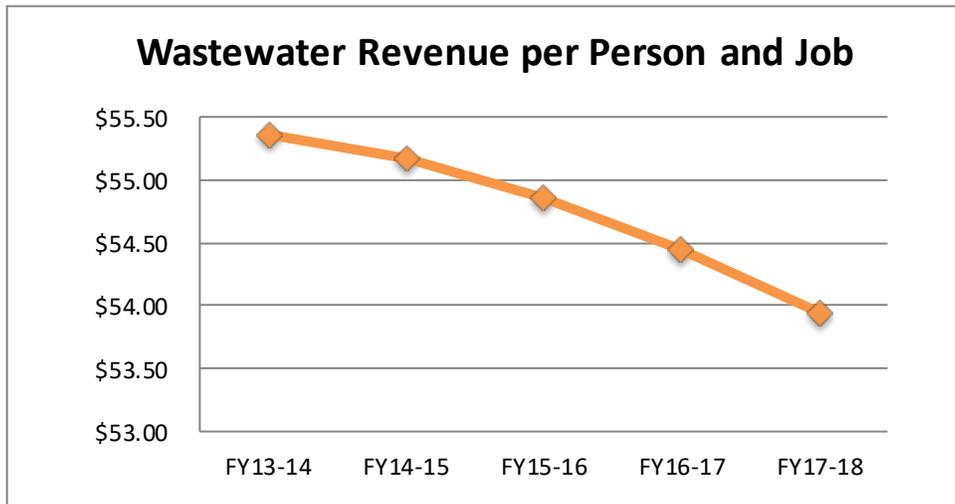


Figure A4 displays Wastewater Revenue per person and job. Excess revenues from wastewater will be used to fund operations and maintenance.

Figure A4: Wastewater Revenue per Person and Job



ARA 9-463.05.B.12 states, “The municipality shall forecast the contribution to be made in the future in cash or by taxes, fees, assessments or other sources of revenue derived from the property owner towards the capital costs of the necessary public service covered by the development fee and shall include these contributions in determining the extent of the burden imposed by the development. Beginning August 1, 2014, for purposes of calculating the required offset to development fees pursuant to this subsection, if a municipality imposes a construction contracting or similar excise tax rate in excess of the percentage amount of the transaction privilege tax rate imposed on the majority of other transaction privilege tax classifications, the entire excess portion of the construction contracting or similar excise tax shall be treated as a contribution to the capital costs of necessary public services provided to development for which development fees are assessed, unless the excess portion was already taken into account for such purpose pursuant to this subsection.”

The sections quoted above are among the most difficult to interpret, resulting in a range of approaches by municipalities. Set forth below is the method TischlerBise utilized to comply with its understanding of the statutory sections.

Section B.12 modifies and restricts the forecast of contributions to “revenue derived from the property owner.” However, contractors paying the construction excise tax are not typically the long-term property owners. In Coolidge, the construction contracting tax rate is currently 4% and the general privilege tax rate is 3%. Therefore, the excess portion is 25% of the total construction sales tax revenue (i.e. 1 minus 3 divided by 4).

TischlerBise recommends that a practical method for Coolidge to comply with the requirements in Sections E.7 and B.12 is to devote a portion of the City’s construction sales tax revenue to be used exclusively for the capital cost of necessary public services. If Coolidge annually deposits the excess portion into a separate fund, only using the money for the capital cost of necessary public services and considers the reserved amounts when calculating development fees, the City will ensure compliance with Arizona’s enabling legislation. **The City gives 25% of all City Sales Tax to the Capital Fund, which is above this amount.** The amount that the City pledges to the Capital Fund is shown in Figure A5.

Figure A5: Sales Tax Contribution to Capital Fund

	<i>FY13-14</i>	<i>FY14-15</i>	<i>FY15-16</i>	<i>FY16-17</i>	<i>FY17-18</i>
General Sales Tax	\$4,277,191	\$4,307,803	\$4,254,881	\$4,202,430	\$4,150,454
Construction Sales Tax	\$384,000	\$400,000	\$500,000	\$600,000	\$700,000
Total Sales Tax	\$4,661,191	\$4,707,803	\$4,754,881	\$4,802,430	\$4,850,454
25% of Total Sales Tax	\$1,165,298	\$1,176,951	\$1,188,720	\$1,200,607	\$1,212,614

As specified in the last phrase of Section B.12, TischlerBise maintains that Coolidge does not need to further reduce development fees because “the excess portion was already taken into account for such purpose” as documented by the following attributes of the City’s 2014 development fee study.

- The Library Facilities development fee is conservatively based on existing infrastructure standards, even though the existing space is over capacity and has a much lower level of service than what is recommend by the National Institute for Building Services.
- The Parks Facilities development fee does not include parks over 30 acres, swimming pools, or trails.
- The Street Facilities development fee uses the incremental expansion method as opposed to the plan based method. (The incremental expansion method forecasts a need for 6.7 lane miles of improvements, but the City has identified over 31 lanes miles of projects to increase capacity.)
- The Wastewater Facilities development fee includes projects where the total cost has been reduced to accommodate funds from grants and previously raised development fees. Additionally, a growth share has been applied to the Wastewater Master Plan and the Capacity Assurance Plan, which results in future development only being responsible for a portion of the cost.

Thus, the future revenues to be derived from the property owner are already factored into the development fees such that further reduction under Section B.12 is not required.

APPENDIX B: PROFESSIONAL SERVICES

As stated in Arizona’s development fee enabling legislation, “a municipality may assess development fees to offset costs to the municipality associated with providing necessary public services to a development, including the costs of infrastructure, improvements, real property, engineering and architectural services, financing and professional services required for the preparation or revision of a development fee pursuant to this section, including the relevant portion of the infrastructure improvements plan” (see 9-463.05.A). Because development fees must be updated at least every five years, the cost of professional services is allocated to the projected increase in service units, over five years (see Figure B1). Qualified professionals must develop the IIP, using generally accepted engineering and planning practices. A qualified professional is defined as “a professional engineer, surveyor, financial analyst or planner providing services within the scope of the person's license, education or experience”.

Figure B1: Cost of Professional Services

Necessary Public Service	Cost	Assessed Against	Proportionate Share	Cost Allocation				Cost per Demand Unit
				Units	2018	2023	Change	
Wastewater	\$11,600	All Development	100%	Gallons/ Day	851,400	888,342	36,942	\$0.31
Parks & Recreation	\$10,672	Residential	92%	Residents	12,169	12,722	553	\$17.75
	\$928	Nonresidential	8%	Jobs	2,591	2,671	80	\$0.92
Fire	\$7,424	Residential	80%	Residents	12,169	12,722	553	\$10.73
	\$1,856	Nonresidential	20%	Avg Wkdy Nonres Vehicle Trips	6,818	7,084	265	\$1.39
Streets	\$13,920	All Development	100%	Avg Wkdy VMT	32,992	34,452	1,460	\$9.53
TOTAL	\$46,400							

APPENDIX C: LAND USE ASSUMPTIONS

For municipalities in Arizona, the state enabling legislation requires supporting documentation on land use assumptions, a plan for infrastructure improvements, and development fee calculations. This document contains the land use assumptions for the City of Coolidge 2018 development fee update. Development fees must be updated every five years, making short-range projections the critical time frame. The Infrastructure Improvements Plan (IIP) is limited to ten years for non-utility fees, thus a very long-range “build-out” analysis may not be used to derive development fees.

Arizona Revised Statutes (ARS) 9-463.05 (T)(6) requires the preparation of a Land Use Assumptions document which shows:

“projections of changes in land uses, densities, intensities and population for a specified service area over a period of at least ten years and pursuant to the General Plan of the municipality.”

TischlerBise has prepared this Land Use Assumptions document which details current demographic **estimates** and future development **projections** for both residential and nonresidential development that will be used in the infrastructure improvement plan (IIP) and calculation of the development fees. The development projections are used for calculating the level of service to be provided to future development by planned capital projects or existing infrastructure that was oversized in anticipation of new development. The development projections are also used in forecasting the amount and cost of infrastructure required by new development that will be documented in the cash flow analysis.

Development fee methodologies are designed to reduce sensitivity to accurate development projections in the determination of the proportionate-share fee amounts. If actual development is slower than projected, development fee revenues will also decline, but so will the need for growth-related infrastructure. In contrast, if development is faster than anticipated, the City will receive an increase in development fee revenue but will also need to accelerate the capital improvements program to keep pace with development.

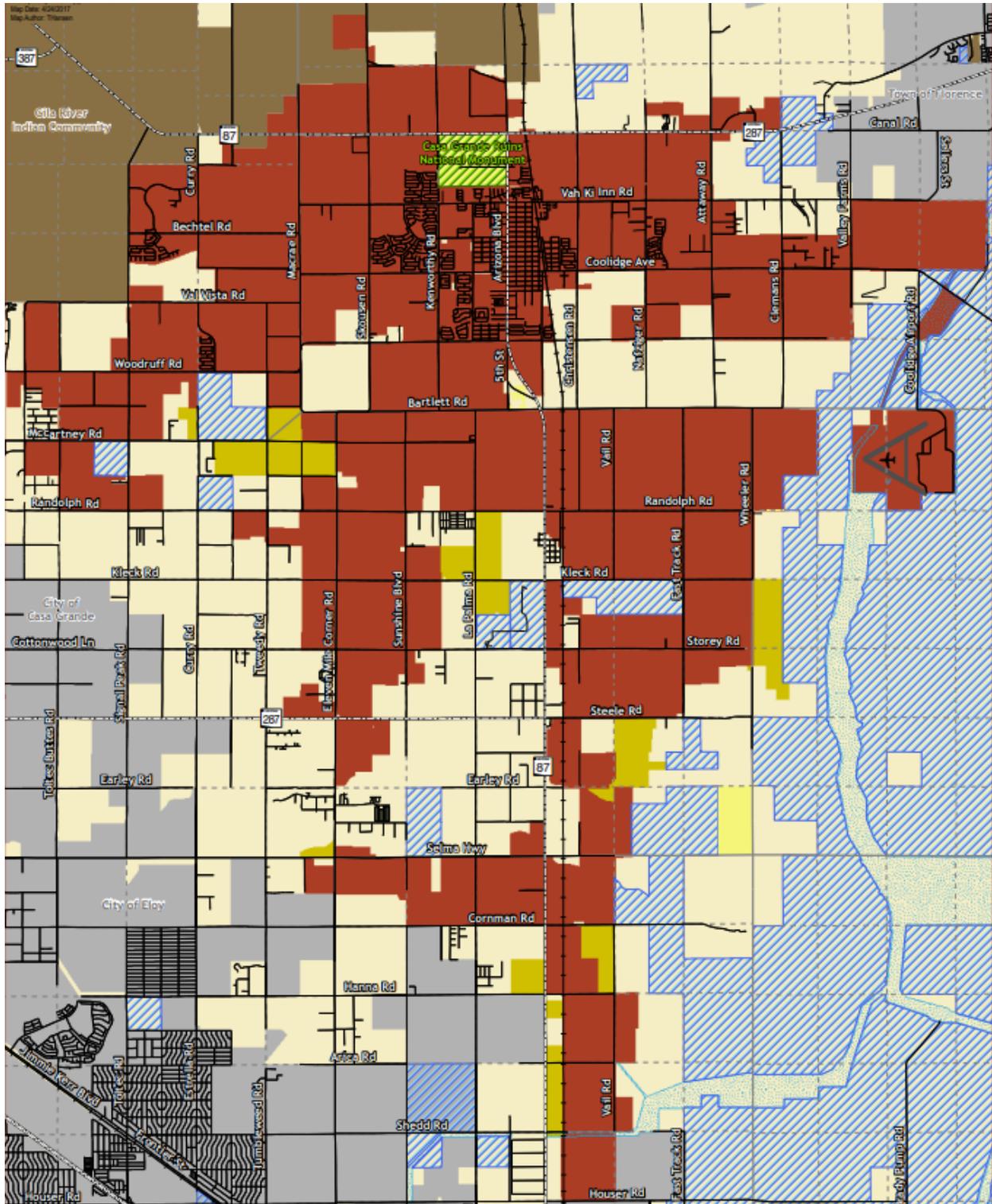
SERVICE AREA

ARS 9-63.05 defines “service area” as follows:

Any specified area within the boundaries of a municipality in which development will be served by necessary public services or facility expansions and within which a substantial nexus exists between the necessary public services or facility expansions and the development being served as prescribed in the infrastructure improvements plan.

The estimates and projections of residential and nonresidential development in this Land Use Assumptions document are for areas within the boundaries of the City of Coolidge. The map on the following page illustrates the area within the City’s boundaries, shown in maroon, which for the purposes of this study shall coincide with the service area boundaries.

Figure C1: Map of City of Coolidge Service Area



Source: City Limit Map, THansen, April 24, 2017. www.coolidgeaz.com.

RESIDENTIAL DEVELOPMENT

Current estimates and future projections of residential development are detailed in this section, including housing units by type and population.

Current Estimates of Residential Development

In 2010 the U.S. Census Bureau transitioned from the traditional long-form questionnaire to the American Community Survey (ACS), which is less detailed and has smaller sample sizes. As a result, Census data now has more limitations than before. For example, data on detached housing units are now combined with attached single units (commonly known as townhouses). For development fees in Coolidge, “single-unit” residential includes both detached units and townhouses that share a common sidewall but are constructed on an individual parcel of land. The second residential category includes all structures with two or more units on an individual parcel of land.

According to the Census Bureau, a household is a housing unit that is occupied by year-round residents. Development fees often use per capita standards and persons per housing unit, or persons per household, to derive proportionate-share fee amounts. When persons per housing unit are used in the fee calculations, infrastructure standards are derived using year-round population. When persons per household are used in the fee calculations, the development fee methodology assumes all housing units will be occupied, thus requiring seasonal or peak population to be used when deriving infrastructure standards.

TischlerBise recommends that development fees for residential development in the City of Coolidge be imposed according to year-round residents per housing unit. For the development fee calculations, TischlerBise used the ACS results shown at the top of Figure C2 to indicate the relative number of persons per housing unit, by units in a residential structure, and the housing mix in Coolidge. Since the 2010 Decennial Census, the average number of persons per household has noticeably risen from 2.47 to 2.70. Because the 2010 Census did not provide a breakdown of unit types and number of units per structure, TischlerBise assumed the ratios of single-family versus multi-family (for persons, households, and housing units) in the 2010 Census were the same as in the 2016 ACS.

The average number of persons per housing unit has risen considerably since the 2010 Census, reflecting a national trend. In the decade following the subprime mortgage crisis, which created a glut of housing units and feeble demand to fill them, the housing market has slowly but steadily rebounded and vacancies have gradually diminished. In Coolidge, however, the vacancy rate has remained stubbornly high at 18.6%.

Figure C2: Persons per Housing Unit by Type**2016 American Community Survey, 5-Year Estimates**

Type	Persons	Households	Persons per Household	Housing Units	Persons per Housing Unit	Vacancy Rate
Single Unit ¹	11,146	3,322	3.36	4,080	2.73	18.6%
2+ Units ²	907	316	2.87	392	2.31	19.4%
Subtotal	12,053	3,638	3.31	4,472	2.70	18.6%
Group Quarters	0					
TOTAL	12,053	3,638	3.31	4,472	2.70	

2010 Census

Type	Persons	Households	Persons per Household	Housing Units	Persons per Housing Unit	Vacancy Rate
Single Unit ¹	10,935	3,604	3.03	4,376	2.50	17.6%
2+ Units ²	890	343	2.60	420	2.12	18.4%
Subtotal	11,825	3,947	3.00	4,796	2.47	17.7%
Group Quarters	0					
TOTAL	11,825	3,947	3.00	4,796	2.47	

1. Single Unit includes detached, attached, and mobile homes.

2. 2+ Units includes boats, vans and RVs.

Source: Totals from Summary File 1, U.S. Census.

Past Residential Construction

Between the 2010 Census and the 2016 ACS, the housing stock in Coolidge shrunk by an estimated 324 units, an average loss of 54 housing units per year. **Figure 3** below illustrates the number of new residential dwelling units permitted by the City over the last six years. The Maricopa Association of Governments (MAG) anticipates the housing boom Coolidge experienced in the early 2000s before the Recession will return within the next several years. Residential building permits have been increasing recently, albeit at a slow pace.

Figure C3: Residential Building Permits by Year

Residential Units Permitted in Coolidge					
2012	2013	2014	2015	2016	2017
5	3	5	5	7	10

Source: City of Coolidge Development Services

Residential Development Forecast

From 2015 to 2020, and from 2020 to 2030, socioeconomic projection data for the Coolidge Metropolitan Planning Area (MAG, June 2016) indicates a compound annual growth rate in the number of housing units of 3.56% and 4.10%, respectively. However, the recent residential permit data suggests very little residential growth has occurred since the Great Recession. To balance the current stagnant housing growth with robust projections for the future, TischlerBise and City of Coolidge staff created its own projections which grow slowly at 25 additional residential units per year in 2018, gradually increasing to

125 additional units per year by 2028. This approach provides more conservative short-range projections, and ample housing growth in the long term.

To calculate the population for each year, a ratio of 2.70 persons per housing unit was assumed, which was derived from the 2016 ACS data (see Figure C2). TischlerBise’s projections for housing units and population through 2028 can be found in Figure C4 below. Over the next ten years, Coolidge is projected to add approximately 68 housing units and 184 residents annually, for a ten-year total of 680 units and 1,836 residents.

Figure C4: Projected Housing Units and Population

	2018	2019	2020	2021	2022	2023	2028		
	Base	1	2	3	4	5	10		
Total Housing Units¹	4,507	4,532	4,572	4,612	4,662	4,712	5,187		
Single Unit ² (91.2%)	4,110	4,133	4,170	4,206	4,252	4,297	4,731	Total Increase	Avg Anl Increase
2+ Units ² (8.8%)	397	399	402	406	410	415	456		
Annual Increase		25	40	40	50	50	125	680	68
Persons per Housing Unit ³	2.70	2.70	2.70	2.70	2.70	2.70	2.70	Total Increase	Avg Anl Increase
Population ⁴	12,169	12,236	12,344	12,452	12,587	12,722	14,005		
Annual Increase		68	108	108	135	135	338	1,836	184

1. TischlerBise projections based on permit history and anticipated growth.
2. Single versus 2+ unit mix based on table B25024, 2016 American Community Survey,
3. 2010 Census, SF 1.
4. Derived from Total Housing Units multiplied by Person per Housing Unit.

NONRESIDENTIAL DEVELOPMENT

In addition to making residential development estimates and projections, the Infrastructure Improvements Plan and development fee calculations also require an analysis of nonresidential development. Current estimates and future projections for jobs and nonresidential square footage are detailed in this section. TischlerBise uses the term “jobs” to refer to employment by place of work (as opposed to place of residence).

Jobs by Type of Nonresidential Development

Figure C5 indicates the City’s 2018 job estimates and nonresidential floor area. The jobs quantities are based on MAG Socioeconomic Projections (June 2016), extrapolated to 2018, with the various industry sectors aggregated into one of four categories: Industrial, Commercial, Institutional, and Office/Other. The floor areas were estimated using a square foot per employee multiplier obtained from the Institute of Transportation Engineers (ITE 2012). For Industrial jobs, the ITE multiplier for Manufacturing was used. The multiplier for Commercial is an average-size shopping center. For Institutional jobs, the multiplier is that for an Elementary School, and for Office/Other, the ITE multiplier for an average-sized office was used.

As shown below, in 2018 there were approximately 2,571 jobs in Coolidge and slightly more than 1.1 million square feet of nonresidential floor area. The Office/Institutional category has the greatest

employment, estimated at 1,218 jobs. This is followed by the Commercial category with approximately 760 jobs and 30% of the City’s job market, while Industrial is the smallest category, comprising 582 jobs and 23% of total employment.

Figure C5: Current Jobs and Floor Area Estimates

	2018 Jobs¹	% of Total	Sq Ft per Job²	Floor Area	Jobs per 1,000 Sq Ft
Industrial	582	23%	628	365,496	1.59
Commercial	771	30%	427	329,217	2.34
Office/Institutional	1,218	47%	337	410,466	2.97
Total	2,571	100%	430	1,105,179	

Sectors Included	
Industrial	<i>Manufacturing, Construction, Transportation, Warehousing, and Agriculture</i>
Commercial	<i>Retail, Consumer Services, Hospitality, Tourism, and Recreation</i>
Institutional	<i>Education and Government</i>
Office / Other	<i>Business Services, Finance, Healthcare, Media, Telecommunications, and Social & Advocacy Services</i>

1. 2017 Arizona COG/MPO Employer Database, extrapolated to 2018.
2. Trip Generation, Institute of Transportation Engineers, 10th Edition (2017).

In Figure C6 on the following page, blue shading indicates the three nonresidential development prototypes from ITE used by TischlerBise to estimate floor area in Coolidge.

Figure C6: Employee and Building Area Ratios

<i>ITE Code</i>	<i>Land Use / Size</i>	<i>Demand Unit</i>	<i>Wkdy Trip Ends Per Dmd Unit*</i>	<i>Wkdy Trip Ends Per Employee*</i>	<i>Emp Per Dmd Unit</i>	<i>Sq Ft Per Emp*</i>
110	Light Industrial	1,000 SF	4.96	3.05	1.63	615
130	Industrial Park	1,000 SF	3.37	2.91	1.16	864
140	Manufacturing	1,000 SF	3.93	2.47	1.59	628
150	Warehousing	1,000 SF	1.74	5.05	0.34	2,902
254	Assisted Living	bed	2.60	4.24	0.61	N/A
320	Motel	room	3.35	25.17	0.13	N/A
520	Elementary School	1,000 SF	19.52	21.00	0.93	1,076
530	High School	1,000 SF	14.07	22.25	0.63	1,581
540	Community College	student	1.15	14.61	0.08	N/A
550	University/College	student	1.56	8.89	0.18	N/A
565	Day Care	student	4.09	21.38	0.19	N/A
610	Hospital	1,000 SF	10.72	3.79	2.83	354
710	General Office (avg size)	1,000 SF	9.74	3.28	2.97	337
760	Research & Dev Center	1,000 SF	11.26	3.29	3.42	292
770	Business Park	1,000 SF	12.44	4.04	3.08	325
820	Shopping Center (avg size)	1,000 SF	37.75	16.11	2.34	427

* Trip Generation, Institute of Transportation Engineers, 10th Edition (2017).

Nonresidential Development Forecast

Figure C7 on the following page provides ten-year job and nonresidential floor area projections for Coolidge. Projected jobs and nonresidential floor area in Coolidge from 2015 to 2028. The 2015 estimates are based on the MAG Socioeconomic Projections (June 2016), as shown in Figure C5 on the previous page. Nonresidential floor area was derived by multiplying jobs by the ITE square foot per employee multipliers highlighted in the above figure.

Just as with housing units, MAG anticipates explosive growth in the Coolidge jobs market in the coming years, while recent trends suggest very little nonresidential growth has occurred since the Great Recession. To balance the current stagnant job growth with the robust projections for the future, TischlerBise created its own projections which grow slowly at 10 additional jobs per year in 2018, gradually increasing to 50 additional jobs per year by 2028. This approach provides more conservative short-range projections, and ample job growth in the long term. The growth rates for each of the four employment categories were weighted differently to reflect national and regional employment trends. Commercial jobs are projected to grow the fastest (1.5% per year), followed by Office & Other employment and Institutional employment (1.1% and 0.9% per year, respectively), and Industrial employment growing at the slowest pace (0.3% per year).

Over the next ten years, through 2028, Coolidge is anticipated to add an average of 27 jobs and approximately 14,700 square feet of nonresidential floor area per year, or a total 270 jobs and 107,000 square feet of non-residential floor area.

Figure C7: Projected Jobs and Nonresidential Floor Area

	2018	2019	2020	2021	2022	2023	2028	10-Year
	Base Yr	1	2	3	4	5	10	Increase
Jobs by Employment Sector								
Industrial Jobs	582	583	584	585	586	587	597	15
Commercial Jobs	771	776	783	790	799	808	897	126
Office & Institutional Jobs	1,218	1,222	1,229	1,236	1,246	1,256	1,347	129
Total MPA Jobs	2,571	2,581	2,596	2,611	2,631	2,651	2,841	270
Annual Increase		10	15	15	20	20	50	

Source: 2015 jobs from MAG Socioeconomic Projections (June 2016). Years 2016 - 2028 are based on TischlerBise projections.

Nonresidential Floor Area (square feet in thousands)								
Industrial KSF	365	366	367	367	368	369	375	
Commercial KSF	329	331	334	337	341	345	383	
Office & Institutional KSF	410	412	414	417	420	423	454	
Total MPA KSF	1,105	1,109	1,115	1,121	1,129	1,137	1,212	107
Annual Increase		4	6	6	8	8	20	

Source: Nonresidential Floor Areas were derived using Jobs shown above and ITE Sq Ft Per Employee multipliers.

AVERAGE DAILY VEHICLE TRIPS

Average Weekday Vehicle Trips are used as a measure of demand by land use. Vehicle trips are derived using average weekday vehicle trips from the reference book, *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE) in 2017. A vehicle trip end represents a vehicle entering or exiting a development (as if a traffic counter were placed across a driveway).

Residential Vehicle Trip Rates

As an alternative to using the national average trip generation rate for residential development, the Institute of Transportation Engineers (ITE) publishes regression curve formulas that may be used to derive custom trip generation rates using local demographic data. Key independent variables needed for the analysis (i.e. vehicles available, housing units, households, and persons) are available from American Community Survey data. Shown below in Figure C9, custom trip generation rates for Coolidge differ significantly from the national averages. Single-family residential development is estimated to generate 8.22 average weekday vehicle trips per dwelling unit. Multi-family residential development is estimated to generate 5.26 average weekday vehicle trips per dwelling.

Key independent variables needed for residential trip rate analysis (i.e., vehicles available, housing units, households, and persons) are available from the U.S. Census Bureau American Community Survey (ACS) 2016 data for the City of Coolidge. This data was used to estimate custom average weekday vehicle trips by type of housing, as shown in Figure C8 below.

Figure C8: Average Weekday Vehicle Trips by Housing Type

	Vehicles ¹	Households ²			Vehicles per Household
		Single Unit	2+ Units	Total	
Owner-occupied	3,948	2,103	6	2,109	1.87
Renter-occupied	2,241	1,219	310	1,529	1.47
TOTAL	6,189	3,322	316	3,638	1.70

	Persons ³	Trip Ends ⁴	Vehicles	Trip Ends ⁵	Average Trip Ends	Housing Units ⁶	Trip Ends per Housing Unit
Single Units	11,146	29,854	5,723	37,202	33,528	4,080	8.22
2+ Units	907	1,996	466	2,128	2,062	392	5.26
TOTAL	12,053	31,850	6,189	39,330	35,590	4,472	7.96

1. Vehicles available by tenure from Table B25046, American Community Survey, 2012-2016.
2. Households by tenure and units in structure from Table B25032, American Community Survey, 2012-2016.
3. Persons by units in structure from Table B25033, American Community Survey, 2012-2016.
4. Vehicle trips ends based on persons using formulas from *Trip Generation* (ITE 2017). For single unit housing (ITE 210), the fitted curve equation is $EXP(0.89*LN(persons)+1.72)$. To approximate the average population of the ITE studies, persons were divided by 14 and the equation result multiplied by 14. For 2+ unit housing (ITE 220), the fitted curve equation is $(2.29*persons)-81.02$.
5. Vehicle trip ends based on vehicles available using formulas from *Trip Generation* (ITE 2008). For single unit housing (ITE 210), the fitted curve equation is $EXP(0.99*LN(vehicles)+1.93)$. To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 17 and the equation result multiplied by 17. For 2+ unit housing (ITE 220), the fitted curve equation is $(3.94*vehicles)+293.58$.
6. Housing units from Table B25024, American Community Survey, 2012-2016.

Vehicle trips rates for nonresidential development are from the reference book, *Trip Generation* published by the Institute of Transportation Engineers (ITE) in 2012 (see Figure C6). These rates are multiplied by each employment category's total floor area, measured in square feet x 1,000.

Commuter Trip Rate Adjustments

To calculate road development fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50 percent. As discussed below, additional adjustments are made to ensure the fees are proportionate to the infrastructure demand for each type of development.

Residential development has a larger trip adjustment factor of 63 percent to account for commuters leaving Coolidge for work (who, therefore, would not be double counted at their destination). According to the 2009 National Household Travel Survey, weekday work trips are typically 31 percent of "production" trips (i.e. all out-bound trips, which are 50 percent of all trips). Data from the U.S. Census Bureau's OnTheMap web application indicates that 84 percent of Coolidge's workers travel outside the City for work. In combination, these factors ($0.31 \times 0.50 \times 0.84 = 0.13$) account for 13 percent of additional production trips. The total residential adjustment factor includes attraction trips (50 percent of trips) plus the journey-to-work commuting adjustment (13 percent of production trips) for a total of 63 percent.

Figure C9: Trip Adjustment for Commuters

Trip Adjustment Factor for Commuters¹	
Employed Coolidge Residents (2015)	4,579
Coolidge Residents Working in City (2015)	648
Residents Commuting Outside Coolidge for Work	3,931
Percent Commuting out of the City	86%
Additional Production Trips²	13%
Residential Trip Adjustment Factor	63%

1. U.S. Census, OnTheMap Application (version 6.1) and LEHD Origin-Destination Employment Statistics, 2015.

According to the National Household Travel Survey (2009), home-based work trips are typically 31% of “production” trips, in other words, out-bound trips (which are 50 percent of all trip ends). Also, LEHD OnTheMap data indicate that 86% of Coolidge's workers travel outside the City for work. In combination, these factors ($0.31 \times 0.50 \times 0.86 = 0.13$) account for 13 percent of additional production trips. The total adjustment factor for residential includes attraction trips (50% of trip ends) plus the journey-to-work commuting adjustment (13% of production trips) for a total of 63%.

Nonresidential Trip Rate Adjustments

The basic trip adjustment factor of 50 percent is applied to the Industrial, Office and Institutional categories. For Commercial development, the trip adjustment factor is less than 50 percent because they attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, ITE data indicate 34 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66 percent of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66 percent multiplied by 50 percent, or approximately 33 percent of the trips.

Total Estimated Weekday Vehicle Trips

As shown in Figure C10, there is an average of 34,055 vehicle trips generated by existing development in the City of Coolidge on an average weekday. As the table indicates, residential development is estimated to generate 22,603 vehicle trips compared to 11,452 vehicle trips generated by nonresidential development. The bulk of nonresidential vehicle trips in Coolidge are attributed to Commercial and Institutional uses.

Figure C10: Trip Adjustment

2018 Residential Vehicle Trips Average Weekday			
Residential Units ¹			
Single Unit	4,112		
2+ Units	395		
Average Weekday Vehicle Trip Ends per Unit ²			
	<i>Trip Rate</i>	<i>Adj. Factor</i>	
Single Unit	8.22	63%	
2+ Units	5.26	63%	
Residential Vehicle Trip Ends Average Weekday			
Single Unit	21,294		
2+ Units	1,309	% of total	
Total Residential Trips	22,603	77%	
2018 Nonresidential Vehicle Trips Average Weekday			
Nonresidential Gross Floor Area (1,000 sq. ft.) ³			
Industrial	365		
Commercial	329		
Office/Institutional	410		
Average Weekday Vehicle Trips Ends per 1,000 Sq. Ft. ²			
	<i>Trip Rate</i>	<i>Adj. Factor</i>	
Industrial	3.93	50%	
Commercial	37.75	33%	
Office/Institutional	9.74	50%	
Nonresidential Vehicle Trips Average Weekday			
Industrial	718		
Commercial	4,101		
Office/Institutional	1,999	% of total	
Total Nonresidential Trips	6,818	23%	
TOTAL TRIPS	29,422		

DETAILED DEVELOPMENT PROJECTIONS

Below, Figure C11 provides a summary of the City of Coolidge’s development projections, with cumulative projections shown at the top and annual increases shown at the bottom of the table.

Figure C11: Development Projections Summary

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	10-Year Increase
	Base	1	2	3	4	5	6	7	8	9	10	
Population	12,169	12,236	12,344	12,452	12,587	12,722	12,925	13,127	13,397	13,667	14,005	1,836
<u>Housing Units</u>												
Single Unit	4,112	4,135	4,171	4,208	4,253	4,299	4,367	4,436	4,527	4,618	4,732	620
2+ Units	395	397	401	404	409	413	420	426	435	444	455	60
Total Housing Units	4,507	4,532	4,572	4,612	4,662	4,712	4,787	4,862	4,962	5,062	5,187	680
Jobs	2,571	2,581	2,596	2,611	2,631	2,651	2,681	2,711	2,751	2,791	2,841	270
<u>Nonres Sq Ft in thousands (KSF)</u>												
Industrial	365	366	367	367	368	369	370	371	372	374	375	9
Commercial	329	331	334	337	341	345	351	357	365	373	383	54
Office/Institutional	410	412	414	417	420	423	428	433	439	446	454	43
Total KSF	1,105	1,109	1,115	1,121	1,129	1,137	1,149	1,161	1,177	1,192	1,212	107
Annual Increase		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	10-Year Avg Anl
Population		67	108	108	135	135	203	202	270	270	338	1.4%
Housing Units		25	40	40	50	50	75	75	100	100	125	1.4%
Jobs		10	15	15	20	20	30	30	40	40	50	1.0%
Industrial KSF		1	1	1	1	1	1	1	1	1	1	0.3%
Commercial KSF		2	3	3	4	4	6	6	8	8	10	1.5%
Office/Institutional KSF		1	2	2	3	3	5	5	6	6	8	1.0%
Total KSF		4	6	6	8	8	12	12	16	16	20	0.9%

SUMMARY OF GROWTH INDICATORS

The housing unit projections were developed by TischlerBise to balance past average residential building permits in Coolidge and socioeconomic projections from the Maricopa Association of Governments (June 2016). Coolidge is projected to add 680 housing units by 2028, an average annual growth rate of 1.42%. Projected housing units were converted to population using the U.S. Census Bureau’s 2016 American Community Survey average of 2.70 year-round residents per housing unit.

The job projections were developed by TischlerBise such that job growth is slow at first but increasing over time. Coolidge is projected to add 270 jobs by 2028. To reflect regional and national trends, Commercial jobs grew at the fastest pace (1.53% annually), followed by Office/Institutional (1.01%), and Industrial growing at the slowest pace (0.26%). Nonresidential floor area was derived from the job projections using square-feet-per-employee multipliers obtained from the Institute of Transportation Engineers (ITE 2012). In the next ten years, Coolidge is projected to add roughly 107,000 square feet of nonresidential floor area, an average annual growth rate of 0.9%.

Figure C12 below illustrates the growth in housing units and nonresidential floor area over the next ten years. These two projections will serve as the key metrics in calculating the City of Coolidge’s development fees.

Figure C12: Housing Unit and Nonresidential Floor Area Projections

